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CLINICAL PSYCHIATRY

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CLINICAL PSYCHIATRY

A Text-Book

FOR STUDENTS AND PHYSICIANS

ABSTRACTED AND ADAPTED FROM THE
SIXTH GERMAN EDITION OF

KRAEPELIN'S "LEHRBUCH DER PSYCHIATRIE"

BY

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PREFACE

THE motive for this work was to make the teachings of Kraepelin in psychiatry accessible to American medical students and general practitioners, and, at the same time, to provide a full, but concise, text-book, not only for the author's own classes in psychiatry in the Medical Department of Yale University, but as well for other American teachers who follow Kraepelin's views. Urged by the rapidly increasing interest in Professor Kraepelin's teaching during the past five years in this country and the constantly growing number of his disciples, it was the author's first intention to publish a complete translation of the sixth edition of Kraepelin's "*Lehrbuch der Psychiatrie*." It was feared, however, that a full translation would be too large to best subserve the function of a text-book, and would have rendered impossible the adaptation of the Kraepelin psychiatry to our peculiar American needs.

The classification, terminology, and, wherever possible, the phraseology of this work are Kraepelinian, but the author has taken the liberty of abbreviating disproportionately the description of some psychoses which are of less importance to the American physician, especially the constitutional psychopathic states and thyroigenous insanity, and of laying more stress upon other more important forms, the description of acquired neurasthenia, traumatic neuroses, also the treatment in epileptic and hysterical insanity and acquired neurasthenia.

The only omissions are the general etiology, diagnosis, and treatment in the first volume of Kraepelin, but such points as are of most importance have been added to the etiology, diagnosis, and treatment of the different diseases.

The work has been done in the pressure of routine duties as Assistant Physician and Pathologist of the Connecticut Hospital for the Insane, and the author begs leave to express in this place his grateful appreciation of the generous advice and help of his colleagues in the hospital, especially Dr. Charles W. Page. He is particularly indebted to Dr. J. M. Keniston for a general revision of the text as well as for the arrangement of the chapter on epileptic insanity, to Professor Raymond Dodge, Ph.D., of Wesleyan University, for criticism and suggestion with regard to the general symptomatology, and to Dr. August Hoch and Adolf Meyer for their continued inspiration and critical assistance.

A. ROSS DEFENDORF.

MIDDLETOWN, CONN.,
January 15, 1902.



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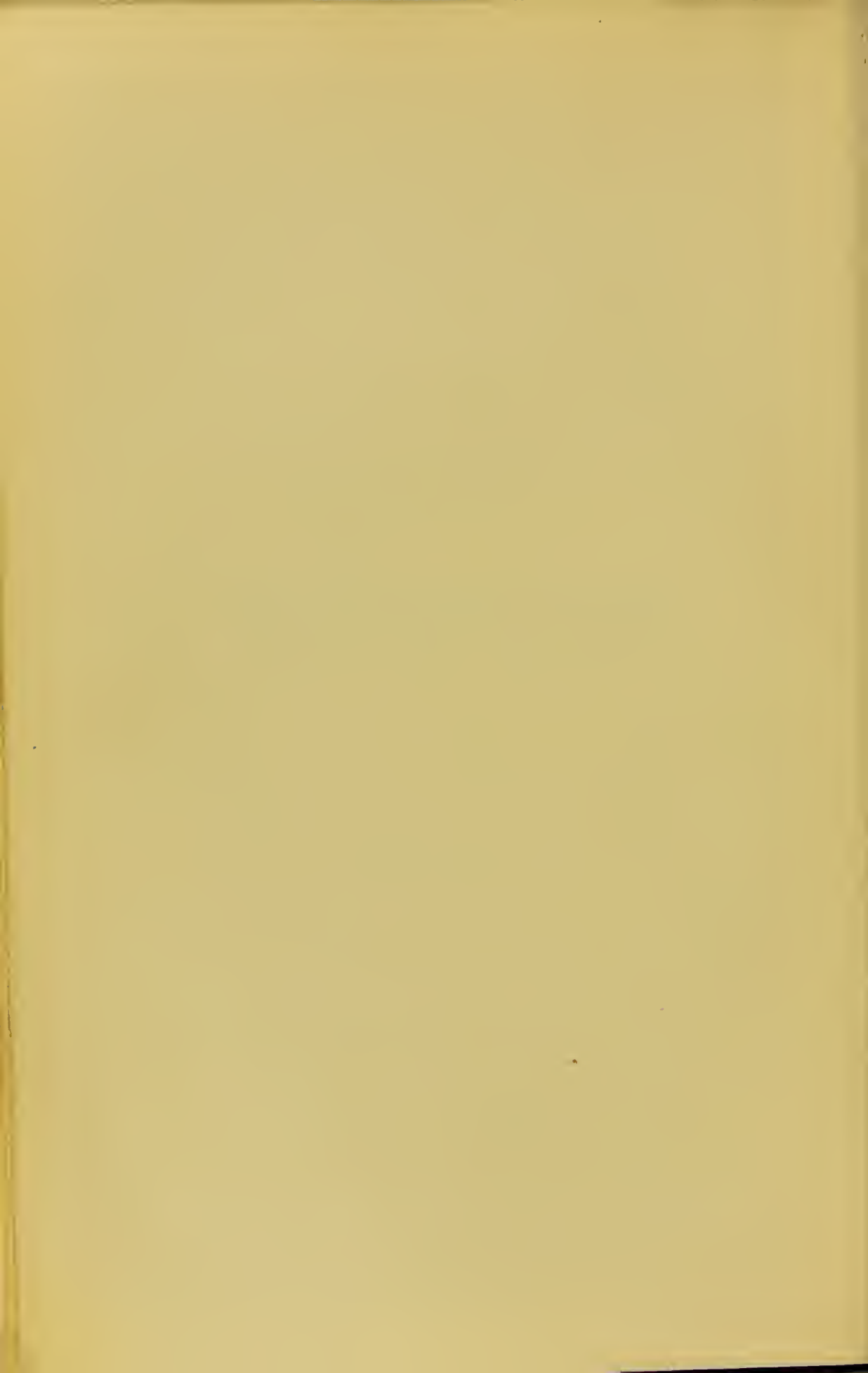
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GENERAL SYMPTOMATOLOGY





GENERAL SYMPTOMATOLOGY

A. DISTURBANCES OF THE PROCESS OF PERCEPTION

THE perception of external sensory stimuli depends upon two conditions: the adequate stimulation of the sensory end organ; and the elaboration of this stimulation by the central nervous system.

The loss of one or more of the senses modifies mental development in proportion to the importance of the sensory material lost and the possibility of substituting other sensory experience. Loss of sight is relatively unimportant, but loss of hearing, on account of its relation to language, is of great importance; indeed, unless specially trained, deaf mutes remain mentally weak through life.

ILLUSIONS AND HALLUCINATIONS

More important than the mere absence of sensory experience is its falsification.

Inadequate stimulation of the sense organ produces impressions corresponding to the "specific energy" of that sense; for instance, an electric current may produce a sound, a taste, a tactual or a visual sensation, according as it stimulates the corresponding sense organ. Such sensations are real illusions, but they do no harm because they are immediately recognized as illusions. In conditions of mental disturbance, on the contrary, especially

where there is great clouding of consciousness, the subjective sensations of light as the result of congestion of the eye, or a roaring in the ear, may be interpreted as fire or torrents of water, giving rise to genuine deceptions which are not corrected. This sort of peripherally conditioned sense deception has been called *elementary*, on account of its origin in that part of the sensory apparatus which receives the stimulus.

States of consciousness similar to sensory perceptions may be produced by the excitation of the so-called cortical sensory areas. This is naturally referred to an external object, and results in an illusion as to the real source of the stimulus. This group of hallucinations may be called *perception phantasms*. They may occur in normal individuals, particularly at the onset of sleep, as hypnagogic hallucinations. In abnormal conditions, they are often extremely vivid and misleading. They usually bear no relation to the content of thought, and, consequently, seem to the patient to belong to the external world. They have a fairly uniform content, subject only to slight modification (stable hallucinations of Kahlbaum); and consist of senseless words, noises, figures, and the like, which are repeated over and over again. Because of their central origin, they may occur after destruction both of the peripheral sense organ and the afferent nerve.

Peripheral influences may also produce, directly or indirectly, conditions of excitation in the higher portions of the sensory tracts, which lead to sense deceptions, particularly if the general irritability of these parts is increased. In morbid conditions, ordinary organic stimuli suffice to produce such falsification. In other cases, these hallucinations may appear if attention is merely directed to that sensory field, or if an emotional condition temporarily

increases the general susceptibility to stimulation. It disappears, on the other hand, as soon as the patient becomes quiet or directs his attention elsewhere, as in conversation, manual or mental employment, change of environment, etc. Further evidence of coöperation of conditions of stimulation in the sense organ is found in the occasional occurrence of one-sided hallucinations, the frequent association of chronic middle ear disease with hallucinations of long standing, and the production of hallucinations of sight in alcoholic delirium by gentle pressure on the eyeball. Usually these sense deceptions appear only in a single sensory field, and are most frequent in the fields of hearing and sight.

Sense deceptions are divided clinically into *hallucinations and illusions*. In the former there are no recognizable external stimuli; the latter are falsifications of real percepts. In some cases this distinction may be difficult to carry out on account of internal stimulation of the sense organs, such as occurs in phosphenes, entotic noises, etc. In other cases the distinction is clear. The perception of ghosts in moving clouds and limbs of trees, curses and threats in ringing bells, are evidently illusions. But the well-known visual disturbance of the alcoholic, and the voices which torture the condemned in his prison, when everything is quiet, are pure hallucinations.

The universal characteristic of the entire group of sense deceptions is their *sensory vividness*. They depend on the same sort of cerebral processes as does normal perception, and the false perception takes its place in consciousness among the normal sensory impressions without any distinguishing characteristic. The patients do not merely believe that they see, hear, and feel, but they really *see, hear, and feel*.

In morbid conditions *very vivid ideas* or *memory images* may assume the form of hallucinations, being regarded by the patients as real perceptions of a peculiar kind. Many investigators hold that all false perceptions should be regarded as ideas of imagination of extraordinary sensory vividness. But in order that an idea attain the clearness of a perception, some special cause must be present. This is indicated by the fact that in patients suffering from hallucinations, not all, but only certain groups of ideas seem to play a rôle in the sense deceptions, and besides these are usually ideas of the ordinary, faded, and formless type. The element which makes a hallucination out of a vivid idea is probably a reflex excitation of those central sensory tracts, through which alone normal stimuli come to consciousness (the so-called "reperception" of Kahlbaum). If it is really these areas of the brain through whose excitation perception acquires its peculiar sensory marks, it is easy to see how they may participate in varying degrees in the active process of renewing previous impressions. A view of this sort would explain the fact that there lies between the sense deception of pronounced sensory vividness and the most faded memory image an unbroken series of transition stages. It is possible that during the ordinary thought processes this *reflex excitation* or *reperception* is always present in a very slight degree, but that only when the process becomes morbid, or the sensory areas themselves are in a condition of increased excitability, does the vividness of the memory picture approach that of true sense perception. Probably there is, moreover, a definite relation between the strength of the *reperception* and the irritability of the sensory areas; the greater their irritability, the more easily will the memory images attain sensory vividness, the lighter the reflex

excitation need be to release them, and the more independent they are of the current of thought. The extreme case would be found in the sense deceptions depending upon local excitation, which seem to the patient to be something quite foreign and external. The extreme case in the other direction would be those instances which are not true sense deceptions at all, but merely ideas of great sensory vividness. By careful investigation it is often possible to analyze the data given by the patient, which apparently indicated hallucinations, and to discover that the patient does not regard the impression as objectively real, but merely differentiates it from his ordinary ideas on account of its forceful vividness. In these cases it is probable that the re-perception is strongly developed, while irritability of special sensory tracts is not increased. This seems to be borne out by the fact that this group of hallucinations, which has been variously designated as psychic hallucinations (Baillarger), pseudohallucinations (Hagen), and apprehension hallucinations (Kahlbaum), involves several or all of the sensory fields, and that it always stands in close relation to the other contents of consciousness; while the true falsifications of perception, on the other hand, usually belong to a single sensory tract, and are independent of the train of thought.

A striking illustration of this type of hallucinations is found in a condition called "double thought." Immediately upon the appearance of any idea, the patient has another distinctly subsequent idea of the same thing; *i.e.* every idea is followed by a distinct sensory after-image. This double thought occurs most frequently when the patients are reading, sometimes when writing, and occasionally, also, when linguistic ideas come vividly to consciousness. The sensory after-image disappears if the

words are actually spoken. Other hallucinations of hearing universally accompany this condition.

Apperceptive illusions are those in which subjective elements unite with the objective sensory data, giving rise to a distorted and falsified impression. They are of very frequent occurrence in normal life; prejudice, expectation and the emotions, continually influence our perceptions even in spite of our earnest effort to be neutral. Even the most tranquil scientific observer is never quite certain that his perceptions do not unconsciously suit themselves to the views with which he approaches his investigation; while in reading we all unconsciously correct the errors of the type-setter from the residua of our experience. In mental disturbances the conditions are often extraordinarily favorable for this falsification of apprehension. Marked emotional excitement, great activity of the imagination, and finally, the inability to sift and correct experience by reason,—all are favorable to its development. Thus, it frequently happens that the sensory impressions of patients take on fantastic forms and become the basis of a thoroughly falsified apprehension of the external world, even when there are no true hallucinations. This phenomenon naturally occurs most frequently, both in normal and abnormal states, when the sensory impressions are confused and indefinite, and not readily differentiated.

There is an allied group of disturbances which consists in the release of a false perception in one sensory field through a real impression received by another, constituting the so-called "*reflex hallucinations of Kahlbaum*." A sensory stimulus may produce conditions of excitation, which, transferred to an over-excited sensory area, occasion the development of an hallucination. Similar conditions

are daily encountered in the so-called sympathetic sensations, like the unpleasant sensation of an inexperienced onlooker at a painful surgical operation. In morbid conditions these may be very marked. Especially sensations of movement which frequently accompany sense impressions seem to rise in this way. There are patients who feel on their tongues the words spoken by others; a glance from some one may excite a sensation of strain.

A very important characteristic of sense deceptions, which in one way points to their origin and in another to their importance as a disease symptom, is the *powerful and irresistible influence* which they exert over the *entire thought and activity* of the patient. It is true that occasionally a pronounced illusion appears in persons mentally sound; and, also, that at the beginning, as well as at the end, of a mental disease the illusions are often recognized as such, because of their improbable content, but usually persistent illusions and hallucinations overpower the judgment, and ultimately the patients invent the most foolish and fantastic explanations to account for them.

The basis for this irresistible influence is not to be found in the sensory vividness of the illusion, since real sensations and definite evidence are useless as correctives. Its explanation is found rather in the *intimate connection between the illusions and the patient's innermost thought, morbid fears, and desires*. The emotional states and the feelings color the illusions in a peculiarly high degree, as one might expect from their influence in normal life. It is frequently observed, especially in the end stages of dementia præcox, that illusions appear only in connection with the periodical vacillations of the emotional state, while they completely disappear in the interval. This influence of the emotional life upon the thought and

actions only disappears with recovery, or when progressive deterioration obliterates emotional activity. In both cases the illusions may continue, but the patients do not react upon them.

These facts manifestly disprove the general view that sense deceptions regularly, or even frequently, act as the real causes of delusions. To be sure, patients point to their hallucinations as the basis of their symptoms, but there can be no doubt that the *sense deceptions have a common source of origin with the other disturbances of the mental equilibrium*. In reality the patient's attitude toward his illusions and hallucinations is not the same as his attitude toward his actual perceptions. No healthy individual would refer to himself such words as "That is the president," and then immediately believe he must be the president. But when these words form the keystone of a long chain of secret misgivings, an hallucination of that sort makes the most profound impression, and immediately there arises a firm conviction, not only that the words were really spoken, but that they express the truth.

In view of these facts we see no special practical value in distinguishing in single cases whether the delusion, the emotional state, or the corresponding sense deceptions appear first. In the vast majority of cases, and especially where the sense deceptions appear with persistent delusions, all of these disease symptoms are certainly only the result of one and the same common cause.

Illusions and hallucinations present a large number of clinical types in the different sensory fields. The most frequent sense deceptions of *sight* are those which occur at night, the so-called visions; God, angels, dead persons, distorted figures, wild animals, and the like. The less

common sense deceptions of sight which appear in daylight along with the normal impressions are much more like normal perceptions and consequently more deceptive. The sense deceptions of the alcoholics are of this type (see p. 115). The objects of the surroundings may take on an entirely different appearance; patients mistake strangers for relatives and *vice versa*, and believe that the same persons are taking on different forms and faces, are making grimaces, etc.

The most important sense deceptions of *hearing* are the so-called *voices*, a term which is usually well understood by the patient. The basis for their importance lies in the fundamental significance of language in our psychic life. The voices usually have an intimate relation to the content of consciousness; in fact, they are the linguistic expressions of the patient's inmost thought, and for this reason have for him a far greater convincing power than all other sense deceptions, more even than real speech. The voices mock the patient, threaten him, and tell his secrets. They are heard in the scratching of a pen, in the barking of dogs, etc. Sometimes there are several distinct "voices" with characteristic differences. Usually they are low, as if coming from a distance, though occasionally they are loud enough to drown all other noises. It rarely happens that the "voices" speak long sentences. Usually they consist of short, interrupted remarks.

In some cases there occurs a peculiar rhythmical rise and fall of the tone, seeming to have a definite relation to the pulsations of the carotid. Auditory sense deceptions usually occur in the form of loud shouting and cracking noises, ringing of bells, wild shrieks; but sometimes they consist of pleasant music and songs.

Auditory sense deceptions are seldom indifferent to the

patients, but are almost always accompanied by strong emotional disturbances and wield a powerful influence over the patients' actions. They make them distrustful, excited, and even drive them to angry attacks on their imaginary tormentors.

The so-called "*internal voices*," "suggestions," "telephoning," "telegraphing," etc., form a special group of hallucinations of hearing. These naturally are not regarded by the patients as sensory in their origin. They may occur as a kind of monologue or as a conversation with distant persons; sometimes the voices of conscience seem to criticise the patient or spur him on. In all these cases the patient develops the delusion that his thoughts are known to every one, or that they are produced and influenced by outside forces.

Sense deceptions in the other senses are of much less importance. False perceptions of taste, smell, dermal, muscular, and general senses, so far as they derive their origin from the thoughts of the patient, and not from the disturbance of the sense organs, point to a profound change of the whole psychical personality.

Where delusions of electrical influence, of position, of incasement of different organs of the body, the disappearance of the ears, mouth, etc., are present we no longer have simple illusions and hallucinations, but almost always a severe disturbance of the higher psychical processes.

CLOUDING OF CONSCIOUSNESS

External stimuli occasion within us characteristic mental phenomena which we apprehend immediately and distinguish as presentations, feelings, and volitions. This experience is designated as consciousness which is present whenever physiological stimuli are converted into psychic

processes. The nature of consciousness is obscure, yet we know not only that it in general depends upon the functioning of the cerebral cortex, but also that its individual phenomena are connected with definite, but as yet undetermined, physiological processes in the nervous system. Just as the transition of the external stimuli into sensory excitations depends upon the nature of the sensory organ, so the condition of the cerebral cortex is the determining factor in the transformation of physiological into conscious processes. Whether such transformation takes place in individual cases is often very difficult to determine, since we have no immediate insight into the inner experience of others and are compelled to draw our conclusions from their behavior.

The condition in which the transformation of physiological into psychical processes is completely suspended, is designated *unconsciousness*. Every stimulus which crosses the threshold of consciousness thereby arousing a psychic process must possess a certain intensity which cannot sink below a definite limit. This limit is called the threshold value and varies greatly according to the condition of the cortex. While it is lowest in strained attention, the threshold value reaches infinity in the deepest coma. It is thus possible to distinguish different degrees of the *clearness of consciousness* according to the character of the threshold value. But even when conscious processes are no longer aroused by external stimuli, consciousness in the form of obscure presentations and general feelings may still exist.

DISTURBANCE OF APPREHENSION

The vast majority of our impressions at any given moment are obscure and confused. Presentations only become clear and distinct when they find residua of past

experience in the memory, "resonators," as it were, through whose sympathetic vibration the sensory stimulation is intensified. It is through this process, which Wundt calls "apperception," that each percept becomes united with our past experience, through which alone it can be understood. This supplementing the given impression by memory images greatly increases the delicacy of our apprehension, but brings with it the danger of a *falsification of perception*.

Whenever the residua of previous experience fail to coöperate in perception, external impressions are not comprehended; the whole content of consciousness becomes less distinct, and there results a *clouding of consciousness*. Even if intense stimuli force their way into consciousness, they are not understood, as they have no connection with the past. We have a similar experience when we are confronted by absolutely unfamiliar circumstances to which our past gives us no clue. Thus the details of an inverted landscape are largely lost to us, although the sensory stimuli *per se* are quite as intense when inverted as when right-side up.

When the memory residua respond only to intense stimuli, external impressions can be understood only occasionally and with effort. If the disturbance of apprehension is still greater, this condition passes over into insensibility and lethargy. Ordinary fatigue and its transition into sleep present all degrees of this phenomenon. A similar disturbance of apprehension is produced by a number of hypnotics, such as alcohol, paraldehyde, and trional. It is also found in the following morbid states: mental exhaustion, fever and intoxication deliria, epilepsy, collapse delirium, and amentia. Lesser disturbances of apprehension are encountered in manic-depressive insanity.

Disorientation, in which one is unable to comprehend his environment in its temporal and spacial relations and the personality of those about him, is possibly a special form of a moderate clouding of consciousness. It is self-evident that in coma one can no longer comprehend his environment. But even when some impressions are well apprehended the disorientation may be more or less complete. The most striking example of this occurs in delirium tremens (see p. 117). Defective orientation is always associated with disturbance of apprehension, but the converse is not true. On the other hand, orientation may be fairly good, while the ability to understand questions and orders is lost. The causes of this disturbance are probably very complicated. Orientation seems to require more elaborate mental processes than does the understanding of isolated words, and it is precisely these more elaborate processes that seem to be affected most in the moderate degrees of clouding of consciousness. All of this naturally has no reference to the disorientation which is caused by false interpretation of impressions, as in delusions, etc.

Normal consciousness during its development in earliest childhood is similar to clouding of consciousness. The child lacks the complex memory residua by which present experience is interpreted. In the more severe forms of defective psychical development this condition remains permanent. The consciousness of the idiot is nothing but an obscure mixture of isolated, confused presentations and indefinite feelings, in which neither clear apprehension, lucid arrangement, or grouping is possible.

The possibility of active *attention* and choice of impressions is the most important result of the influence of the memory residua over perception. In a child the content

of consciousness is helplessly dependent upon accidental circumstances; it receives only the most striking stimuli. In adults, on the other hand, the process of perception is more and more dominated by personal tendencies which gradually develop out of the experiences of the individual. We train ourselves to notice certain impressions in preference to others, so that some stimuli, however faint, have decided advantage over others. On the other hand, we accustom ourselves to be *inattentive* to regularly recurring stimuli, yielding them no influence over our psychic processes. This development of definite "points of view," definite directions of interest, leads to an extraordinary variability of the threshold of consciousness, so that in the same moment strong stimuli pass quite unnoticed, while we apprehend with greatest acuteness the finest alterations in some special object. This ability to concentrate the attention is of the greatest importance for the development of the understanding.

The domination of the attention by accidental external influences is called *distractibility*. The greater the distractibility, the less the perception is controlled by the inner motives arising from experience, and the less coherent and uniform is the conception of the external world. Individual percepts are linked incoherently with those internal associations which are developed under the influence of controlling ideas. Details are apprehended without a comprehensive view of their relation, and the entire apprehension is superficial. This defect is found in children and more or less in some normal adults. The extreme form occurs in idiocy. A lesser degree of distractibility is found in the absent-mindedness of fatigue. Distractibility is more marked in chronic nervous exhaustion, during convalescence from severe mental and

physical illness, and still more prominent in the acute exhaustion psychoses, also in paresis and dementia præcox, while it is especially characteristic of *maniacal forms of manic-depressive insanity*. In these conditions a single word or the most casual stimuli suffice to distract the attention. Distractibility is not to be confused with "*hyperprosexia*," which consists in the total absorption of the attention by a single process, examples of which are found in the so-called absent-mindedness of scholars, and the complete absorption of the melancholiac in his sad ideas.

B. DISTURBANCES OF MENTAL ELABORATION

The material of experience, received through the different senses and clarified by attention, forms a basis for all further mental elaboration, and it is self-evident that both disturbances of apprehension, and the inability to make a systematic choice in the impressions, must affect to a marked degree the character of all intellectual processes.

DISTURBANCES OF MEMORY

All higher mental activity depends largely upon memory. Every impression which has once entered consciousness leaves behind it a gradually fading "disposition" to its recall, which may be accomplished either through an accidental association of ideas or through an exertion of the will. This disposition to recollection is really identical with the residua which each new perception contributes to the store of experience and to the resources of memory. The residua are strong and permanent in direct proportion to the clearness of the original impression, to the multiplicity of its relations to other processes, *i.e.* to the interest it arouses and to the frequency of its repetition. The vast majority of our ideas and the greater part of the association complexes with which we have to do daily are so accessible to us that they appear of themselves under the least provocation and without any effort.

Memory is really a dual process dependent on *impressibility* and on *retentiveness*, each of which may be disturbed independently of the other.

Impressibility is the faculty of receiving a more or less permanent impression made by new experience. The clear apprehension of events, especially when aided by active attention, increases this impressibility, while it is lessened by difficulty of apprehension, by distractibility and indifference. It, therefore, is diminished wherever there is cloudiness of consciousness as in amentia, to a less extent in the absent-mindedness of fatigue, and in the states of deterioration in dementia præcox and in epileptic insanity, which are characterized by stupid indifference to the environment. There is also a marked disturbance of impressibility in many other diseases, especially those with extensive lesions, paresis, senile dementia, and Korsakow's disease, although the moment impressions are well apprehended and assimilated. In normal life it is the greatly diminished impressibility which renders it difficult to recall our dreams. This demonstrates that psychic life, and therefore consciousness, can exist without memory. Similar conditions of clouded consciousness, with undoubted evidences of a psychic activity, but yet without memory, occur in epilepsy, many delirious conditions, profound intoxications, and hypnotism. "Retrograde amnesia," in which memory is more or less permanently destroyed without clouding of consciousness, occurs in epileptic, hysterical, and paralytic attacks, head injury, and some attempts at suicide, in which patients cannot remember the events which immediately precede the attack. Memory for this period may return.

Retentiveness of memory for past events depends upon the previous impressibility, upon repetition and the native tenacity of the individual memory. Its disturbance is manifested by an inability to accurately recall former knowledge and important personal events. Lack of im-

pressibility usually accompanies lack of retentiveness, but the converse is not necessarily true, as impressibility is affected by clouding of consciousness, while retentiveness is not. In senility the former is far more disturbed than the latter; recent events leave no residua, while remote events recur in memory with ease and accuracy. This is even more striking in senile dementia and may occur in paresis.

Our experience is usually retained in memory in a temporal series reaching back from the present into the past, in which only recent events are remembered distinctly; while the rest is grouped around more or less isolated points which form the basis for the general chronological arrangement of our experience. *Disturbances of the temporal arrangement of experience* are frequently encountered in mental diseases. They are usually more or less pronounced in paretics and in the severer cases of senile dementia, to whom months often seem like days. On the other hand, the image of the immediate past fades so quickly that it appears as remote as the events which happened months ago.

Finally, the *accuracy of memory* may be disturbed. Even in normal conditions, accuracy is only relative. In morbid change of personality or the emotions, and in the development of delusions, the past is always more or less falsified. Vivid imagination and pronounced egoism imperceptibly modify the memory of past experience even in normal life; stories are embellished with interesting details, while the self becomes a more and more important factor. This is always exaggerated in disease, while in melancholia, persecutory and expansive delusions often color the memory of the past until it seems like pure invention.

A mixture of invention and real experience is called *paramnesia*. There also exist "hallucinations of memory" (Sully), which consist of pure *fabrifications*, being found especially in paresis, paranoid dementia, and sometimes also in maniacal forms of manic-depressive insanity. These are often fantastic accounts of wonderful adventures; they may be modified by suggestion and are frequently self-contradictory (see p. 215). The delusion of a double existence may be produced by confusing present experience with indistinct memory images of the past, so that every event seems like a duplicate of a former experience. This sometimes occurs transiently in normal life; in disease it may last for months, and is found particularly in epilepsy.

DISTURBANCES OF THE FORMATION OF IDEAS AND CONCEPTS

Most of the complex ideas of normal life are composed of heterogeneous elements, furnished by the various senses. In these complexes the importance of the material furnished by any one sense depends upon the peculiarities of the individual. For some, vision is the most important sense, for others, audition; but both of these senses may be entirely lacking without preventing a high development of ideation. On the other hand, lack of permanence of sensory impressions and imperfect assimilation always interfere with the formation of complex ideas. This is illustrated in congenital and acquired imbecility.

The *formation of concepts* is the necessary condition for the fullest development of ideation. In normal life those elements of experience which are often repeated impress themselves more and more strongly, while the accidental variations of each individual experience are driven more

and more into the background. The concepts thus developed are a sort of composite photograph or generalization of experience.

These concepts are the most permanent and most easily reproduced of all our ideational processes. But even these may not be reproduced in totality. More and more in the developed consciousness single elements of these concepts are made to stand for the whole. The exact form of this abbreviation of thought is often accidental, as when some single image comes to stand for the total concept. The highest form of this development is found in the abbreviation of thought by the use of linguistic symbols, *i.e.* when a word stands for the idea.

In morbid conditions, especially in congenital imbecility, this development may stop at any point. The patients may cling to individual experience without being able to sift out the general characteristics of different impressions of a similar nature. They are unable to find concise expressions for more extended experience; the essential is not distinguished from the unessential, the general from the particular.

This not only prevents the development of thought, but it also retards the assimilation of new material. New impressions find no point of attachment in the mental life; they cannot be arranged or systematized, and pass rapidly into oblivion. In acquired imbecility the residua of earlier experience may partly conceal the inability to receive new impressions and to form new ideas. Later, however, this defect gradually becomes more evident. Similarly in paresis, dementia præcox, and senile dementia, the circle of ideas narrows, and general ideas and concepts are gradually replaced by the specific, the immediate, and the tangible. New impressions are no longer elaborated

and the most recent experience is quickly forgotten, while the memory of the past is still fairly constant.

In direct contrast to this is the disturbance produced by *morbid excitability of the imagination*, which correlates dissimilar and even contradictory ideas. Such forced and arbitrary combinations naturally interfere with the normal development of concepts. Thus the foundation of all higher mental activity becomes a mass of confused and indistinct psychic structures, which can give rise only to one-sided and mistaken judgments as soon as the patients leave the region of immediate sensory experience. The tendency to reveries and dreams, lack of appreciation of facts, impossible plans and chimeras, so often found in imbecility, paresis, and paranoid dementia, are clinical forms of this disturbance.

DISTURBANCES OF THE TRAIN OF THOUGHT

The association of ideas may be divided into two groups : *external* and *internal associations*, the former being effected by purely external or accidental relations, while the latter arise from a real coherence in the content of the ideas.

External associations usually arise through the customary connection of ideas in time or space, of which thunder and lightning is an example ; or through habits of speech, in which a definite association of words becomes so fixed by frequent repetition that one word always calls up the others, as in quotations and stereotyped phrases. Sound associations, an important and extreme form of this type, are based either upon similarity of sound or of the movements of the vocal organs, as seen, for example, in a morbid tendency to rhyme. This disturbance may be so marked that the associated sounds are altogether meaningless.

Internal associations depend upon the logical arrangement of our ideas according to their meaning. The association between different individuals of the same species, or different species of the same class, is of this kind; for instance, the association of boy with man and man with animal, etc. The special form of internal associations, which emphasize some particular characteristics of a concept, usually attributes, states of being, or activities, by means of which a preceding idea is more closely defined, is called *predicative* association. That the dog is an animal belongs to the first class of internal associations; that he is dark-colored, or that he runs, belongs to the second.

Paralysis of thought, the simplest form of disturbance of the train of thought, is characterized by complete absence of all associations. It begins as a more or less marked retardation, and develops into characteristic monotony and distractibility of thought. It occurs in a moderate degree in fatigue. Narcotic poisoning presents severer forms. It is a fundamental symptom in the psychoses accompanied by deterioration: paresis, dementia præcox, and senile dementia.

Retardation of thought is manifested by difficulty in the elaboration of external impressions; the train of thought is markedly retarded and the control of the store of ideas is incomplete. It may bring the train of thought to a complete standstill. In contrast to the paralysis of thought, to which it presents a superficial similarity, this inhibition may suddenly disappear under certain conditions, as fear. The patients do not lack mental ability; they are not, like the weak-minded or deteriorated, obtuse and indifferent, but they are unable to overcome this restraint which they themselves very often realize. The most pronounced

form of this disturbance is seen in the depressed and mixed forms of manic-depressive insanity, and perhaps, also, in the disturbance of thought in epileptic stupor.

The *disturbances of the content of thought* are best understood as a faulty arrangement of the individual links of our thought with relation to the goal ideas. Normal thought is usually directed by definite goal ideas, and of the ideas which appear in consciousness, those elements are specially favored which stand in closest relation to these controlling goal ideas. Out of the large number of possible associations those only really occur which lie in the direction determined by the general goal of the thought process.

In morbid conditions the train of thought may be interrupted by individual ideas, or other trains of thought with an especially prominent emotional tone (cf. Melancholia, p. 260).

Compulsive ideas are those ideas which irresistibly force themselves into consciousness. These are usually accompanied by a disagreeable feeling of subjection to some overwhelming external compulsion. The mere fear of their recurrence is often sufficient to bring them into consciousness. They usually develop on a basis of emotional disturbance, and, therefore, accompany melancholia, and especially depressed forms of manic-depressive insanity; while the most favorable condition for their development is hereditary degeneracy (see Compulsive Insanity, p. 382).

Distinguished from the compulsive ideas are the *simple persistent ideas*, unaccompanied by marked unpleasant feelings. This phenomenon is probably due to the absence of definite or fixed goals in the train of thought, — a view which is borne out by our experience with the per-

sistence of some of our own ideas, whenever we give free rein to our thoughts. Rhyme, verses, and melodies sometimes cling to us even in spite of our efforts to throw them off. Since the content of such persistent ideas is wholly accidental, it is probably not the special peculiarities of the individual ideas which determine its persistence, but rather the entire mental condition.

Catatonic patients present this disturbance especially during the period of excitement, when they incessantly repeat isolated words or phrases, or weave them into more or less incoherent trains of thought. One patient repeated for twenty-four hours, "Daddy don't, daddy don't." Another repeated: "Oh — oh — oh — We are the Wall Streets of New York. Oh — oh — oh — look at the clams that we get on 33d Street, New York City. Oh — oh — oh — he ain't doing a thing but spending his money. Oh — oh — oh — and I'm going home. Oh — oh — oh — and I ain't going to stay here any longer. Oh — oh — oh — they got a big thing down there. Oh — oh — oh — drop your money in the slot and you will get all that's coming to you. Oh — oh — oh — he will never get that little racket. Oh — oh — oh — Yale College don't do a thing," etc.

Persistence of ideas in definite trains of thought is differentiated from compulsive ideas by the fact that in the former the ideas are not accidental, but are based on the fixed residua of previous experience. Our whole mental development depends upon associations of ideas gradually fixed by frequent repetitions, which serve as a basis for further mental elaboration. In this way we come to depend upon a large number of phrases and fixed associations, which inevitably follow the appearance of certain cues, not only without our volition, but even against it.

In morbid conditions, even when the collection and elaboration of new impressions is prevented by mental disease, there remain some residual ideas of the normal state, fixed by constant repetition. This results in a monotonous content of consciousness with a marked impoverishment of the store of ideas. This occurs in senility, paresis, and other deterioration processes, in which the train of ideas may shrink down to a few phrases, or even a few words which are repeated over and over. These phrases in contrast to the persistent ideas of the catatonic are not senseless, but actually express the content of the patient's consciousness. The following is an example: "Frazier went away this morning, will be back soon. Didn't ask him what time he'd come home. Frazier is working up in the lot at something. I was up in the lot yesterday. I forget what I went for. Frazier is talking of selling the place. He asked me what I cared about it. Father is going over there to-day. Father don't care for the farm. He didn't speak to me; he is downhearted. He should bring up his boys to work upon it. Frazier don't have time to work. He don't stay home much. I would advise them to have a place and keep it. If I get well I will keep it, if I can. The boys would like to have some farm. They won't stay in a place. Frazier don't like to work on the farm. [Patient hears a woman coming up the hall.] Some woman I hear coming. If she was on a farm, she wouldn't handle much money. If they sell the place, the children will starve for hunger. [Patient looks at her hand.] I am all blacked up. I have been out on the farm a good deal. If he sells the place, the little children will starve for hunger," etc.

Circumstantiality is the interruption of the course of ideas by the introduction of a great multitude of non-es-

sential accessory ideas, which both obscure and delay the train of thought. The disturbance depends upon a defective estimation of the importance of the individual ideas in relation to the goal ideas. The goal may, indeed, be ultimately obtained, showing some real coherence, but only after many detours. The simplest form of circumstantiality appears in the prolixity of the uneducated, who are unable to arrange their general ideas in accordance with their importance, and show a tendency to adhere to details. Some even have difficulty in distinguishing sharply what is actually seen from what is simply imagined. The circumstantiality of the senile is probably due to the disappearance of the general ideas and concepts. Circumstantiality is also present to a marked degree in epileptic insanity, of which the following passage taken from the bibliography of an epileptic is an example: —

“Before one believes what others have told him or what he has read in the almanacs he must be convinced and examine himself before one can say and believe that a thing is beautiful or that a thing is not beautiful; first investigate, go through it yourself, and examine it, and then, when man has investigated everything and has gone through it himself and examined it, then man can at once say the thing is beautiful or is not beautiful or not good; therefore, I myself say, if one will make a statement about a thing, or will sufficiently establish something or will speak in conformity with the truth, the thing is right or is not right, so must every man likewise examine the thing as he believes himself responsible before the tribune God, and before his Majesty, the King of Prussia, William the Second, and the Emperor of Germany. I will now relate further what the soldiers have done to me.”

The absence or incomplete development of goal ideas gives rise clinically to two important forms of disturbance of the train of thought: (1) flight of ideas, (2) desultoriness. The first effect of a defective control over the train of ideas is a frequent and abrupt change of direction. The train of thought will not proceed systematically to a definite aim, but constantly falls into new pathways which are immediately abandoned again. The impetus for such changes of direction can arise from both external stimuli and from internal processes.

In *flight of ideas* the instability of goal ideas produces a condition in which the successive links of the chain of thought stand in fairly definite connection with each other, but the whole course of thought presents a most varied change of direction. The patient is unable to give long answers to questions, and cannot be held to a problem requiring much mental work, because ideas once aroused are immediately forced into the background by others. This is a fundamental symptom of the maniacal form of manic-depressive insanity, and also occurs in acute exhaustion psychoses, infection deliria, paresis, occasionally also in fatigue of normal life and especially in dreams. It may appear in alcoholic intoxication. There is no great wealth of ideas, but on the contrary it is often accompanied by a conspicuous poverty of thought. Moreover, the rapidity of the association of ideas is not at all increased, but on the other hand is usually diminished. The patient's incoherence, therefore, depends simply on the lack of that unitary control of the association of ideas which represses all secondary ideas and permits progress only in a definite direction. As the result of this, any accidental idea which would normally inhibit the goal idea may assume importance. It is not, then, the rapid succession of ideas which

warrants the designation of a flight of ideas, but the instability of single ideas which are unable to exert any influence over the course of the train of thought.

In flight of ideas the direction of the train of thought is determined by external impressions, chance ideas, or finally by simple associations, external or internal. The influence of chance ideas is well demonstrated in intoxication deliria, and especially in opium intoxication, in which vivid ideas of the imagination follow each other in a variegated series, giving rise to an incoherent progression of unrelated fancies, to which experience offers no key. This might be called the *delirious form of flight of ideas*.

The *rambling thought* of the hypomaniacal patient is another form of the flight of ideas in which the patients are diverted by unimportant ideas, reminiscences, and incidents, and need to be frequently led back to their subject. The following is an example (the patient being asked when she left the Hartford Retreat): "My mother came for me in January. She had on a black bombazine of Aunt Jane's. One shoestring of her own and got another from neighbor Jenkins. She lives in a little white house kitty corner of our'n. Come up with an old green umbrella 'cause it rained. You know it can rain in January when there is a thaw. Snow wasn't more than half an inch deep, hog-killing time, they butchered eight that winter, made their own sausages, cured hams, and tried out their lard. They had a smoke house. [But how about your leaving Hartford?] She got up to Hartford on the half-past eleven train and it was raining like all get out. Dr. Butler was having dinner, codfish, twasn't Friday, he ain't no Catholic, just sat with his back to the door and talked and laughed and talked." Here, in spite of many diversions, we see a fairly good sequence in the content of

thought which centres around a visit of the patient's mother.

In the following example, on the other hand, the predominance of motor speech ideas has led to a massing of habitual speech associations, combinations of common words, and finally to simple sound associations. It might be called an external flight of ideas in contrast to an internal flight of ideas characterized by internal associations. "I was looking at you, the sweet boy, that does not want sweet soap. You always work Harvard for the hardware store. Neatness of feet don't win feet, but feet win the neatness of men. Run don't run west, but west runs east. I like west strawberries best. Rebels don't shoot devils at night." The train of thought is supplanted by fixed and familiar phrases, in which the influence of linguistic ideas clearly outweighs that of the content of thought; while sound associations, rhymes, and quotations, etc., stifle all internal associations. The most favorable condition for the appearance of this form is an increased motor excitability and alcoholic intoxication.

Desultoriness, the second form of this type of incoherent speech, is more difficult to characterize, as it is not well understood. In it the external form of speech is fairly well retained, but there seems to be a complete loss of goal ideas, while an incoördinate mass of ideas follow each other aimlessly and abruptly. In the flight of ideas we were able to discover some connection, if only the most external, between the separate links of ideas, which gradually led to a new chain, until the original standpoint was entirely lost sight of. In desultoriness there is no recognizable association between the successive ideas, while the trains of thought often move along for some time in similar phrases. They are confused and contradictory. In

flight of ideas the course always tends toward changing and hence never attained goals, and is, therefore, always entering new circles; in this form, on the other hand, the train of thought does not progress at all in any one direction, but only wanders with numerous and bewildering digressions in the same general paths. Distractibility through internal and external influences may also be present to a marked degree, but the newly aroused ideas do not serve as bases for others, but simply intrude into the desultory train of thought in an incoherent manner. In this way it is often possible, in the midst of their incoherent jumble, to obtain coherent replies to questions. The following is an example of this (the physician's questions are enclosed in brackets): "[Why are you here?] Because I am the empress. The dear parents were already there and everything was already there and had given me permission. I have also learned stenography. Why, David, how are you? Even a member of the reserve, megalomania, empress. [Do you feel well?] Oh, thanks, very well, since the government has given me permission we will be good friends. Oh, God! my brother, Carl David the first and Olga. Ah, let me write something. [Why are you here?] Insane. Megalomania. [What is that?] Nothing, nothing at all. [How old are you?] 22-7-1872. [Will you come again?] I do not know. When he comes I will not run after him (laughs). I must always be close (claps her hands). I have nothing (grasps at the watch chain). But the chain is nothing. Now I will at once see what time it is." This example does not show, however, the repetition of single words or phrases which so frequently occurs in the catatonic productions, and is shown in the following: "You don't own this building, I know that. The Hartford pigpen never supported, never confirmed

food, therefore are not supported and this building will pay for that and food which confirmed it. White immortal eternal receipt for that food. The war planet Mars. I have the white immortal eternal receipt. Mars war planet, or war world Mars. The war world or the war planet Mars. White immortal eternal receipt for its existence and confirmation receipt. The Hartford pigpen is not supported or has not confirmed food or the laws of food, therefore will not be supported by those who have confirmed food. The white immortal eternal receipt."

In extreme desultoriness the speech consists of a mere series of letters, syllables, or sounds, while in the severest forms of flight of ideas there is always some goal idea even though it rapidly changes, and the majority of the expressions consist of actual words; here there is a perfectly senseless repetition of the same sounds with only insignificant modifications, like the following: "Ellio, ellio, ellio altomellio-altomellio, —selo, eloo, devo, heloo — f. f. f. dear father, f. f. f. dear father, e. e. f. old and new — f. f. f. — f. f. — Catholic Church," and so on in monotonous repetition. Sound associations seem to play an important rôle here, but the train of thought does not advance through it to new ideas.

DISTURBANCES OF JUDGMENT AND REASONING

Judgment and inference are the most complex products of the intellect. Since perception, memory, the formation of concepts, and the association of ideas are their necessary preconditions, they will be more or less affected by every imperfection of these processes. But this is not the only source of their derangement.

Human knowledge has two sources; experience, and the free action of the mind itself (imagination). Neither

source is entirely independent of the other: empirical knowledge is never free from preconception and expectation, while even the wildest imagination employs material which originally came from experience. Nevertheless, we sharply differentiate *empirical knowledge* from pure *belief*, which arises from the recasting and interpretation of experience.

Primitive people do not draw this distinction. Their mythological interpretations and traditions are as credible to them as direct experience. Even in children invention and experience are sometimes only partially differentiated. Whenever invention can be easily tested by direct experience the line between the two becomes more and more sharply defined, but even here the natural incompleteness of our apprehension or our habits of thought may lead us into error. If the data furnished by experience is scanty or unreliable, imagination is free to fill the field with its own creations.

Empirical science has slowly supplanted many of the misconceptions of primitive thought, but superstition still survives among the uncultured; while even among the cultured there are beliefs which no experience or arguments can shake. The essential characteristic of these beliefs is their emotional significance for the individual. Dogmatic opinions, ideas firmly fixed by tradition, education, and habit, acquire an overwhelming emotional value, and not only persist in spite of experience, but even mould experience into conformity with themselves (cf. the force of prejudice). The emotional significance of such beliefs has its basis in their relation to vital interest. A feeling of helpless dependence and insecurity in the presence of the unknown and mysterious is the fertile soil of superstition in primitive races. Even in most highly cultured persons

political and religious convictions, although more or less dependent on the rational elaboration of experience for their content, are characteristically inaccessible to opposition and argument.

These peculiarities of normal thought help us to understand the delusions of diseased consciousness. *Delusions are morbidly falsified beliefs which cannot be corrected either by argument or experience.* They do not arise from experience or deliberation, but from belief. Although often associated with actual and falsified perceptions (hallucinations or illusions), they are always due to a morbid interpretation of the events arising in the patient's own imagination. The tendency so often encountered in health, to draw sweeping conclusions from insufficient data or to assume a causal relationship between purely accidental occurrences, becomes an important factor in morbid conditions; the most innocent events are construed as mystic symbols of secret occurrences, and simplest facts are full of mystery. The flight of a bird is an omen of good fortune; an accidental gesture reveals sudden danger.

Further proof of the subjective origin of delusions is found in the close relation which they maintain to the ego of the patient. Just as in health the self forms the point of reference for our thoughts and feelings, so in disease the mysterious creations of the imagination are most intimately connected with the patient's own welfare. The delusions are, consequently, never *indifferent* to the patient except in cases of advanced deterioration. They are not only referred to the self, but they exercise a marked influence over the patient's emotional attitude toward his environment.

Delusions are *inaccessible to argument*, because they do not originate in experience. Experience, therefore, is

unable to correct them as long as they remain delusions. Only in convalescence, when they become a mere memory of delusions, can they be recognized as false. At the height of the disease they are as firmly established as reason herself. So long as the morbid conditions which give rise to them persist, the delusions are unchanged. If they are relinquished or modified, the change is not due to argument, but to a change in the morbid condition. Our argument may drive the patient to admit non-essential points, but the delusion serenely reasserts itself, notwithstanding the most evident self-contradiction. Even when the external object of reference or support is destroyed, a new one is quickly found. The delusion needs no other support than the absolute conviction of the deluded.

Vivid emotional states, such as fear, sorrow, anger, joy, and enthusiasm are important factors in the origin of delusions. Even in health, anxiety and enthusiasm create for us, in the consideration of any subject, fears and hopes which really have nothing to do with the subject matter. In morbid conditions, sorrow and fear exert the strongest influence on the falsifications of ideas.

Clouding of consciousness is sometimes a factor in the development of delusions, especially in delirious states. Delirium tremens and fever delirium, for instance, present a host of fantastic delusions with but very little emotional disturbance. Moreover, delusions which are firmly believed one day may be recognized as false the next, clearly indicating a morbid condition of consciousness, which rendered their correction impossible. We have an example of this in dreams, where we are unable to detect or correct those contradictions which are perfectly clear to us on awakening. Without doubt, therefore, we must regard the clouding of consciousness as an

essential preliminary condition for the development of delusions.

In paresis, senile dementia, and dementia præcox delusions appear in which neither emotions or disturbances of consciousness play a prominent rôle. The *psychic weakness*, which is a prominent symptom in these diseases, seems to favor the development of delusions. But congenital mental weakness shows only a slight tendency to the development of delusions, and likewise many cases of senile, paralytic, and precocious dementia run their course without delusions. The real cause for the delusions cannot, therefore, lie in the psychic weakness of itself, but only in the accompanying conditions of excitation, which permit all sorts of delusional fancies to spring up in the patient's mind. It can be easily demonstrated that delusions originate most freely during heightened or depressed moods.

Another source of delusions may perhaps be found in those peculiar ideas which in health are accustomed to occasionally "pop" into our heads, and whose origin we are unable to account for. While they have no power over us, for the patient, on the other hand, they bear the stamp of absolute certainty, even though soon changed for others. They often intrench themselves firmly in their thoughts and dominate experience, feeling, and conduct.

After this preliminary consideration of all the facts relative to the origin of delusions, we are led to the assumption that *the essential factor is an inadequate functioning of judgment and reason*. In health we are accustomed to judge all our fancies according to the standard of our own past experience, and to regard as invention that which does not conform to our knowl-

edge. The patient either does not perceive the contradictions between his fancies and his former experience, or he disregards it and hides it under assumptions which are even more fanciful. Clearly the patient has lost, not only the impulse, but the power, to oppose, correct, or suppress his delusions. The cause of this disability was formerly sought in the peculiar attributes of the individual ideas. The doctrine of "monomania," which held that the "fixed idea" was only a circumscribed disturbance of an otherwise healthy psychic life, was based upon this assumption.

The development of delusions is thus seen to be based on the general disturbance of the entire psychic life. They are probably incited by emotional fluctuations which transform slumbering hopes and fears into imaginary ideas. *But the fact that these ideas become delusions and acquire a power which even the senses cannot destroy, can only be explained by an inadequate functioning of judgment, dependent on impassioned emotional excitement, clouding of consciousness, and weakness of the reasoning power.*

The character and duration of delusions differ according to their mode of origin. Those which originate in *emotional disturbances* change with the patient's mood, and usually disappear with the emotional disturbance. Delusions of delirium, which are determined both by *clouding of consciousness and emotional disturbances*, are variegated fantastic pictures recurring in manifold forms, with little or no mental elaboration or coherence. They likewise disappear with the clearing of consciousness and the subsidence of the emotional disturbance. Delusions depending both upon *mental deterioration and upon emotional disturbances* do not vanish with the fading of the emotional states. They are gradually forgotten,

but are never corrected by reason. Such delusions occur in paresis, dementia præcox, and senile dementia. In these psychoses the forgotten delusions may reappear for short periods during emotional exacerbations. With continued moderate emotional excitement delusions may be firmly held and even elaborated, as in the paranoid forms of dementia præcox.

Persistent delusions are of two types, the *unsystematized* and the *systematized*. The former may ultimately disappear, as in dementia præcox, end stages of chronic alcoholism, paresis, and senile psychoses, or they may become permanent through frequent repetitions, without systematization, as in the paranoid form of dementia præcox. The progressive and uniform systematization of the delusions without marked mental deterioration constitutes *paranoia* in the strict sense of the word. In this form the delusions become the basis of a thoroughly elaborated, but falsified, apprehension of self and the environment; but even here a decided weakness of judgment is probably always demonstrable. The somewhat similar system of coherent delusions, sometimes found in paresis and dementia præcox, are always of shorter duration.

Practically all delusions centre in the *self*, either as *self-depreciation* (depressive delusions) or as *self-aggrandizement* (expansive delusions). Among depressive delusions, those of *self-accusation* stand closest to the normal life. Many normal patients torment themselves with the belief that they are unlucky. In states of morbid depression this idea of guilt may be associated with the patient's every action. He believes that he is constantly injuring and deceiving others; his past appears to him as a mass of abominable deeds and terrible crimes. He is an irredeemable, unfeeling creature, repudiated by God and

damned, and is consequently about to suffer a fitting punishment, arrest, the scaffold, the stake, or whatever else his ingenuity can invent.

Related to these delusions are the general *fears of poverty, loss of work, or some other misfortune about to befall themselves or relatives*. In progressing mental weakness this form of delusions may become *nihilistic*, when everything, the patient included, is non-existent or less than nothing. A large group of depressive delusions are those of persecution. They originate during periods of indisposition, discomfort, or anxiety. Mistrust and suspicion are excited by peculiar coincidences and misinterpreted remarks. Newspaper articles and popular songs contain references and even indirect insults. All assertions of love and friendship are disbelieved. At this time, also, there usually appear hallucinations, especially auditory. The patient sees himself involved in a network of secret hostilities and imminent dangers which he cannot escape. All are joined against him and gloat over his misery. Men call after him, whisper to each other, shun him, spit in front of him, etc. Food and drink have a peculiar taste, as if poisoned, etc.

Delusions of *jealousy* also play a prominent rôle. The patient notices a coolness in marital relations, detects fond glances and secret signs, finds in letters arrangements for secret meetings. The wife is embarrassed by his unexpected return home, tries to conceal something, coughs in a significant manner, the room is darkened. Outside some one pounds on the door, a form scurries by the window, the last child does not resemble its father, etc.

In advanced mental weakness the persecutory ideas often assume a very *fantastic form*. Absurd somatic delu-

sions of transformation and witchery, such as telepathy, magical, electrical, or hypnotic influences, are common forms. Sexual delusions are especially common, varying from mysterious sexual excitation to imagined childbirth during stupor. All these evils may be attributed to any individual or group of individuals from the neighbor or husband, to the Freemasons or Social Democrats.

In *hypochondriacal delusions* the object is some incurable disease. Harmless physical symptoms are regarded as signs of syphilis, sexual excess, paresis, etc. With the onset of deterioration the delusions become absurd and fantastic.

Expansive ideas may also be referred to a somatic basis. Thus, feeble paretics extol their beautiful voice, their gymnastic dexterity, although they cannot produce a single musical tone or even stand on their feet. Closely connected with the hypochondriacal ideas are such expansive ideas as that the excretions are gold, the urine, Rhine wine, etc. Sometimes delusions with a depressive content acquire the significance of expansive ideas. Patients state that they will die at once in order to be translated to heaven; they send invitations to their own execution, which is to be conducted with great pomp.

The delusion of *mental soundness* in spite of deep-seated mental disease, constitutes an *absence of insight* into the disease. This absence of insight is almost universal in morbid states; many patients not only consider themselves perfectly sane, but remarkably intelligent, as in paresis and paranoia. The external relations of the patients, the social position and property, are similarly transformed by expansive delusions. Noble descent, close relation to the temporal and spiritual authorities, even association with supernatural powers, are among the most frequent forms.

With further development the patient becomes the President, the Pope, Christ, or God. On the other hand, patients boast of their untold wealth and vast estates, including whole continents or the world itself, while vague plans of gigantic undertakings fill their minds.

Depressive and expansive delusions are by no means mutually exclusive. They may co-exist or follow one another very closely. The victim of persecutory delusions discovers an inadequate cause of this persecution in exceptional ability, natural right to great possession or high positions. His detention is the result of jealousy or intrigues. These relations are not the result of logical elaboration, but rather spontaneous and independent consequences of the internal condition of the patient. In dementia præcox the appearance of expansive ideas following delusions of persecution indicates a decided progress of mental weakness.

DISTURBANCES OF THE RAPIDITY OF THOUGHT

The normal rapidity of the association of ideas and concepts varies so greatly in different individuals, and sometimes even in the same individual, that it has been impossible to establish a standard by which morbid deviations can be accurately estimated. We are, however, able to recognize two disturbances; namely, retardation and acceleration of the train of thought.

Retardation occurs even in healthy individuals as the result of physical and mental fatigue. Some unpleasant emotional states produce the same result. It also occurs during the intoxication produced by alcohol, ether, chloroform, chloral, and to a moderate degree after the use of tobacco. This disturbance is characteristic of the depressive and mixed forms of manic-depressive insanity, is

found in the end stages of dementia præcox and paresis, and in congenital imbecility. Moderate retardation appears also in melancholia.

Acceleration is less frequent than retardation. In normal life it is produced only by some forms of emotional excitement, and by such drugs as morphine, caffeine and ethereal oil of tea. In morbid states genuine acceleration is probably never found. In flight of ideas the thought may appear accelerated, but even here real delay can usually be demonstrated.

DISTURBANCES OF CAPACITY FOR MENTAL WORK

The capacity for mental work is independent of the rapidity of thought. It is scarcely to be measured by direct experimentation, although it forms a most important symptom of mental disease. In normal life the capacity for mental work is determined by the residua of past efforts. These residua condition the increase of capacity, which we call *practice*. In morbid states the effects of practice are usually lessened and rapidly disappear, particularly in congenital imbecility.

The capacity for mental work stands in inverse ratio to susceptibility to fatigue. Increased susceptibility to fatigue is very general in most forms of insanity. We find it in exhaustion psychoses, dementia præcox, congenital imbecility, and paresis, where it is often the first striking symptom of the disease. In neurasthenia it is often masked by increased nervous irritability.

Recovery from fatigue is effected by relaxation and especially by sleep. Melancholiacs and neurastheniacs recover very slowly from the effects of mental, emotional, and physical activity. This is the result, in part of diseased mental tone, in part also it results from disturbances

of sleep, not only in amount but depth. It has been shown that in conditions of simple overwork the sleep is light, attains its greatest depth very slowly, and shows an incomplete abatement of its profoundness in the morning.

Finally the capacity for work is markedly decreased by *distractibility*. It can arise from insufficient intensity of the goal ideas, from unusual vividness of individual presentations, or finally from an increased susceptibility to distracting influences. Inadequacy of the goal ideas is probably the cause of distractibility in paresis and dementia præcox. The vividness of individual presentations is seen in the distractibility of acute exhaustion psychoses, and especially in manic-depressive insanity, and probably also in excited periods of dementia præcox and paresis. The increased susceptibility to distracting influences is a regular symptom of neurasthenia, where quite insignificant forms of irritation may become altogether intolerable.

DISTURBANCES OF SELF-CONSCIOUSNESS

The sum total of all those presentations which form the complex idea of our physical and mental personality constitutes self-consciousness. This is the permanent background of our mental life, and exercises a great influence on the course of all our mental processes. In content as well as scope, self-consciousness is determined by the experiences of each individual. All morbid experience, therefore, must eventually disturb the apprehension of the individual personality and its relation to the external world. Falsification of self-consciousness is, therefore, a very frequent disturbance. Its most important forms, however, have already been delineated in the discussion of delusions.

In advanced deterioration self-consciousness ultimately

falls into decay. In dementia præcox and paresis this is the usual terminus of the mental life. In some cases, on the other hand, even when the store of ideas is much impoverished, the patient still retains his self-consciousness and can give an account of his own condition. This is particularly common in epileptics.

C. DISTURBANCES OF THE EMOTIONS

Every sensory impression which sustains any intimate relation to man's welfare is accentuated in consciousness by a concurrent feeling of pleasure or pain, depending on its apparent tendency to advance or retard the general aims of life. Therefore, the feelings are a direct indication of the attitude of the ego to the perceptions of the external world. Disturbances of the emotional life often form the first striking symptom of disease. But the recognition and estimation of these disturbances is difficult, because we lack an adequate normal standard. Even in health the emotions show marked personal peculiarities, closely allied to the abnormal.

DIMINUTION AND INCREASE OF EMOTIONAL IRRITABILITY

The *diminution of the intensity of the emotions* is their simplest and most frequent disturbance. In normal life one's interest in the environment is reflected in more or less intense fluctuations of his emotions. Diminution of these emotional accentuations indicate indifference toward the impressions of the external world. This is characteristic of most forms of mental deterioration, of which it is one of the first and most striking symptoms. Emotional indifference may be marked even when external impressions are well apprehended and elaborated. This striking disproportion between disturbances of the intellect and the emotions is most pronounced in dementia præcox. In paresis, on the other hand, mental elaboration is disturbed to a much greater degree than the emotions.

All phases of the emotional life seldom suffer equally. Naturally the patient loses most easily those feelings which are not directly connected with the changes of his own ego, but are related to the more remote, external world, and further those feelings which have lost their sensory properties and are aroused only through the higher mental processes as concomitants of general ideas and moral principles. The active interest of the patient becomes exclusively selfish. He loses all pleasure in mental work, and all feeling for the higher claims of propriety, morality, and religion. Consideration for his environment, his family, relatives, and finally for mankind in general, has no influence on his conduct. He loses the sense of shame and lacks all comprehension of the conventions of social intercourse.

This *emotional deterioration* is very often the first striking symptom of dementia præcox, and advances with the progress of the disease. It regularly occurs in senile dementia, and sometimes is an early symptom of paresis. In its simplest form it appears, also, in simple senility. Emotional deterioration is also prominent in many forms of congenital imbecility, especially the so-called "moral imbecility," in which the patients show a certain shrewdness in the attainment of selfish advantages which often conceals the real severity of the disease.

Lower or sensuous feelings possess a greater momentary intensity, but are at the same time more transitory than the higher moral æsthetic sentiments, which accompany and determine our thoughts and actions throughout our entire life, and act as checks on sudden emotional impulses of the lower order.

The absence of these checks in imbecility gives rise to sudden, but transitory, outbursts of passion. Without a

firm foundation for the emotional life a mere trifle, a word, the tone of the voice, suffices to plunge the patient from the most blissful self-complacency into the most profound despair. This is an especially prominent symptom in paresis. The emotional indifference characteristic of the end stages of dementia præcox is regularly accompanied by such emotional ebullitions. A permanent characteristic of emotional indifference is lack of insight. The retardation of depressed manic-depressive patients sometimes presents a superficial similarity to the emotional indifference of the deteriorated, but the former realize their condition, and often complain that they are forsaken and desolate.

Increase of emotional irritability is characterized by frequent variations of mood. Every accidental impression has a lively emotional accentuation, giving rise to rapid emotional changes and sudden transitions from one mood to another. This change of "emotional tone" is an important and characteristic symptom, especially in the excitement of the maniacal forms of manic-depressive insanity and in paretic excitement. As the train of thought leaps unsteadily from one subject to another, so the emotional attitude varies constantly in accordance with the ever changing impressions of the moment. In these conditions a definite fundamental emotional tone may prevail in the midst of the various rapid changes, giving way to opposing influences, only to recur just as abruptly in its former intensity.

Lighter grades of morbid emotional activity are very often observed in some forms of congenital imbecility, in hysteria, and during convalescence from exhaustion psychoses. These are characterized by frequent and abrupt alterations of mood, capriciousness, strong outbursts of

feeling upon slight provocation, and a tendency to undue enthusiasm or gloom.

PERSISTENT MORBID EMOTIONS

In contrast to both the diminution and increase of emotional irritability, persistent morbid emotions are characterized by the persistent domination of some definite feelings over the emotional life. The feeling tone most frequently encountered here is sadness. A similar phenomena in the border-land of insanity is found in the normal life when temporary gloom seems to pervade experience. Persistent susceptibility to the unpleasant is often recognized as a congenital personal peculiarity in the constitutional psychopathic states.

This increased susceptibility to the unpleasant is a pronounced but transient accompaniment of depression in various psychoses. The patient is unable to enjoy anything. All the natural pleasures of existence are transformed into a feeling of painful ennui. The unpleasant emotional state naturally induces "painful thoughts," fear, distrust, delusions of persecution, and self-accusation. The increased susceptibility to the unpleasant is sometimes associated with irritability, which finds vent in expressions of intense displeasure. Patients are usually fretful, discontented, at variance with themselves and their environment; annoyed by every trifle, they grumble and growl in the most intolerable manner and show outbursts of passion upon the slightest provocation. This occurs in the transition period between depression and excitement in manic-depressive insanity, also in convalescence from exhaustion psychoses and in melancholia. The passionate irritability of the epileptic and hysterical patients is of the same type.

Fear is by far the most important persistent emotion encountered in morbid conditions. Even in normal individuals it affects sympathetically the entire mental and physical condition, being accompanied by precordial oppression, palpitation, paleness, increased respiration and tremor, and sometimes by perspiration and an increased tendency to urinate and defecate. In morbid conditions fear is usually without an object at first. The patients feel afraid without knowing why, and indeed are often well aware that their fears are groundless. In the constitutional psychopathic states the indefinite fear often assumes peculiar forms, as the feeling of homesickness, and the like. In acute mental disturbances the indefinite anxious forebodings become fixed into more or less definite fears. Extreme fear, like all extreme emotions, is always accompanied by a clouding of consciousness.

Fear is manifested by *anxious excitement* and by *anxious tension*. Anxious excitement is characterized by efforts at defence and escape, supplication for clemency, suicidal attempts, and assaults. Retarded patients of manic-depressive insanity try to present to the threatening danger the fewest possible points of attack, crouch down, shut their eyes, and clinch their teeth. Anxious tension is not maintained at the same intensity for any considerable length of time, but shows remissions, especially at night. Fear is most pathognomonic of melancholia of involution, where it is seldom absent. It occurs frequently in depressive forms of manic-depressive insanity, but may be present also in the dreamy states of epilepsy, in delirium, and in the beginning of catatonic excitement. Paresis often presents the most extreme form of fear.

Lighter grades of fear, in the form of permanent timidity and cowardice, are among the most frequent and char-

acteristic symptoms of the constitutional psychopathic states. The patients from youth lack self-confidence, and are constantly in fear that they will do wrong. These congenital peculiarities form a favorable soil for the development of a further group of disturbances called compulsive fears, which include the fear at the sight of or contact with certain objects, as spiders, knives, needles, etc.; also the fear of being alone on deserted streets, the fear of crowded rooms, of open or closed doors, etc. (see p. 383). These patients are tormented by the idea that their clothes do not fit properly, that they themselves are soiled or poisoned by contact with others, that they might have swallowed needles or fragments of glass, that in tearing up any scrap of paper they might have destroyed valuable papers, etc. Other closely allied disturbances are the feelings of discomfort which arises whenever individuals are compelled to come into any sort of relations with others, as in erythrophobia, morbid blushing.

The *morbid feelings of pleasure* are less frequent than those of displeasure. They occur especially in alcoholic intoxications and alcoholic psychoses, manic-depressive insanity, paresis, dementia præcox, morphin and cocain intoxication. The feeling of increased strength, enthusiasm, and enterprise which result from alcohol probably originate in the facilitation of the release of motor impulses in the brain, as further action of the drug causes irritability, restlessness, and aimless activity. In the maniacal forms of manic-depressive insanity in which there is a similar combination of pleasurable feelings, irritability, and pressure of activity, the emotional disturbance is believed to have a similar origin. This belief is substantiated by physiological experimentation. In paresis the pleasurable feelings are apt to be marked, especially

the *feeling of well-being*. In this disease, however, these feelings often exist unaccompanied by motor excitement, presenting a condition similar to that occurring in hasheesh intoxication.

In chronic alcoholism, as well as in delirium tremens, there is apt to appear a characteristic change of emotional attitude, called the *drunkard's humor*. Its origin is unknown, but may, however, arise from the drunkard's insusceptibility to humiliation and his moral apathy to vice. In dementia præcox, during the excited stages, pleasurable feelings take on the form of a silly, purposeless hilarity and exuberance, with outbursts of silly laughter, which, in contrast to the hilarity of the maniacal forms of manic-depressive insanity, seem to bear no relation to the patient's ideas and environment.

Cocain, morphin, tobacco, and the bromides also produce characteristic feelings of well-being. In tobacco smoking the feeling of agreeable contemplation is due purely to a soporific effect; the bromides produce a feeling of well-being by relieving previous states of uncomfortable excitement. The feeling of *ecstasy*, which occurs especially in epilepsy, and sometimes in hysteria, seems to be very similar to the dreamy state which follows opium smoking. The origin of morbid feelings of pleasure is very difficult to determine, both because they may arise from a great many different disturbances, sometimes somatic and vasomotor, sometimes primarily emotional and sometimes intellectual.

The optimistic emotional tone, which is a personal characteristic of some normal men, becomes really abnormal in those fickle individuals who never look on serious matters seriously, who find everything "fine," and are always cherishing hopes of great things. These

are characteristic of some forms of the constitutional psychopathic states.

DISTURBANCES OF GENERAL FEELINGS.

General feelings are those emotional states which stand in close and inviolable relation to self-preservation, such as feelings of fatigue and hunger. They are to be regarded as admonitions, which gradually develop out of the experience of countless generations into involuntary and instinctive impulses. In ordinary life these feelings inform us of our bodily needs, and they imperiously exact actions adapted to the circumstances. The performances of these actions can usually be inhibited by conscious volition, although often only by means of great self-denial; the feelings themselves are, on the contrary, only thoroughly silenced when the indicated need is relieved in some way or other. In normal life a general feeling may disappear when we pay no heed to it. We are able to overcome weariness when work demands our strength; hunger abates when we are unable for a long time to satisfy it. When at last we have the opportunity to attend to our needs for rest and food, we miss at first the painful weariness and hunger which makes the restoration of our strength so easy. Only when we have rested for some time do we again experience a feeling of weariness, while hunger gradually returns as soon as we begin to eat.

In morbid conditions these general feelings may suffer profound disturbance. *Fatigue* may fail to indicate the actual need for rest. Especially in maniacal forms of manic-depressive insanity there is often a complete absence of weariness in spite of the fact that patients are exhausted by continual restlessness. Upon remission of the excite-

ment, however, the weariness often comes over the patient in full force. The lack of weariness occurs in the excited states of paresis, in exhaustion psychoses, and in catatonia. In states of depression, on the other hand, the feeling of weariness is constantly present, although there is no real exhaustion, as the patient is unoccupied and possibly confined to bed. Both disturbances — weariness without exhaustion and exhaustion without weariness — are often associated in an odd manner in neurasthenia, and especially in the constitutional psychopathic states. The patients, either permanently or at certain times, feel feeble without sufficient cause, unstrung and incapable of work but, on the other hand, they do not secure rest upon retiring at night, as the weariness preparatory to sleep will not come to them.

The feeling of *hunger* is similarly disturbed in these same psychoses. In paretic and catatonic patients there is often a senseless voracity, although the well-nourished patients have no need of such an amount of nourishment. In the constitutional psychopathic states and in hysteria, without any perceptible relation to the state of bodily nutrition, there may be a prolonged absence of the feeling of hunger, which is suddenly replaced by gluttony.

Severe disturbances of the feeling of *nausea* are almost always signs of a far-advanced deterioration. Such patients consume the most disgusting things, even their own dejections. Not infrequently they swallow nails, stones, pieces of glass, or animals, not only with suicidal intent, but constantly overpowering their nausea from pure greediness. These patients also lose those feelings which cause us aversion at the mere contact with filth or dirt and impel us to keep clean, not only our bodies, but our whole environment. They recklessly soil themselves,

even intentionally, with their own food, their own saliva, urine, and even feces.

The feelings of physical *pain* are often abolished. In conditions of excitement, especially with intense fear, even severe injuries produce no sensation at all, although consciousness may be perfectly clear. Such patients pluck out their tongues or eyes, cut open the abdomen, etc., deeds which would be utterly impossible for a man with a normal sense of pain. This insensibility to physical pain is often found in demented patients, especially in paretics, in whom, to be sure, the destruction of the nervous conducting paths is an essential antecedent.

The *sexual feelings*, which pertain to the maintenance of the race rather than to self-preservation, may be increased, abolished, or perverted in disease. Sexual indifference occurs in many forms of the constitutional psychopathic states, and particularly in hysteria, also in morphinism. An increase of sexual excitability is found in some idiots, but in a more pronounced degree in dementia præcox, and also in the excited stages of paresis and the maniacal forms of manic-depressive insanity. Perverted sexual feelings are those in which sexual feelings occur exclusively in connection with persons of the same sex, associations with certain objects, or accompanied by brutality.

D. DISTURBANCE OF VOLITION AND ACTION

All disturbances of the psychic life find their final expression in volition and action. The idea of a definite aim (some change either in ourselves or our environment) forms the starting-point of a volitional act. This idea is accompanied by feelings which are converted into impulses for the attainment of that aim. The direction of any action is determined, therefore, by an idea, while its performance is determined by the intensity and the duration of the accompanying feelings.

Morbid disturbances of volition manifest themselves in the most varied ways: (1) the energy of the volitional impulse can be diminished or increased; (2) its release facilitated or impeded; (3) or the direction can be modified by external or internal influences; (4) morbid impulses can forcibly suppress the normal will; (5) or natural impulses can assume morbid forms; (6) finally, the conduct of the insane is naturally influenced by all those disturbances which occur in other spheres of their mental life, although the volitional process itself presents no disturbance.

DIMINUTION OF VOLITIONAL IMPULSES

The complete suspension of volitional activity is termed *paralysis of the will*. It is produced by extreme fatigue, profound alcoholic intoxication, and in the narcoses of chloroform, chloral, and morphin. It is characterized by an absence of energy. Ordinary impulses find no

issue in action, while even the most powerful incentives of personal well-being and moral claims fail to influence the patient. A more or less complete paralysis of the will occurs in the end stages of progressive mental deterioration: senile dementia, dementia præcox, and paresis. This is characterized by a marked diminution of personal initiative, except in gratification of the lower, selfish, and vegetative impulses, such as greed, gluttony, and sexual desire. If left to themselves, the patients are content to sit around, inactive, displaying very little animation and staring vacantly into space. In dementia præcox it can often be shown that the patients have not lost the voluntary control of their actions, but normal incentives fail to influence them. In the end stages of deterioration the only movements are involuntary and reflex. Similarly, defective volition appears in congenital imbecility as the result of defective development.

INCREASE OF VOLITIONAL IMPULSE

The universal indication of the increase of volitional impulse is *motor excitement*. But we are really justified in speaking of an increase of volitional impulse only when there is a marked disproportion between the intensity of the excitation and the importance of the motives. In alcoholic delirium, for example, we find marked unrest which cannot be explained by the patient's delusions, hallucinations, or emotions, but must be referred to a morbid motor excitation. Patients will not remain in bed, show a pronounced restlessness, and constantly busy themselves as if employed in some occupation. In alcoholic intoxication increase of volitional impulses begins with simple loquacity, and increases to brawling, screaming, and aimless activity. In chronic cocain intoxication (see p. 140)

there develops a peculiar motor excitability which seems to form a transition to the morbid *pressure of activity* which is a characteristic symptom of manic-depressive insanity (see p. 288) and is sometimes found in exhaustion psychoses and paresis.

In the lighter hypomaniacal disturbances this pressure of activity takes the form of general instability and business, great talkativeness, and a tendency to animated gesticulation. Such patients collect all sorts of useless things, begin countless undertakings which they never finish, and, when unrestrained, travel aimlessly about. In more marked excitement the goal ideas become more and more inconstant, and one can hardly detect any purpose at all in their ever changing, incoherent activity. Patients scream, laugh, sing, dance, disrobe, tear their clothing, smear themselves, wash in their own urine, destroy everything they can reach, and pound incessantly with their hands and feet.

Catatonic excitement furnishes a picture essentially different from that of the maniacal pressure of activity. In the maniacal excitement, all impulses lead to more or less purposeful actions, though they might at first appear purposeless and senseless. In catatonia, on the contrary, we have to do with movements which at most have no definite aim. The name "pressure of activity," which has formerly been used for the maniacal stress of action, would really be more applicable to this condition. Although the characteristic excitement in catatonics is often more moderate, the movements are entirely purposeless. Such patients make grimaces, contort the body, run about, clap their hands, and utter a succession of senseless noises. These movements are not pure volitional acts, as there is no antecedent idea of their purpose. Patients themselves

often assure us that they do not know why they perform such absurd antics.

DISTURBANCES IN THE RELEASE OF THE VOLITIONAL IMPULSE

The strength and rapidity with which a volitional impulse is converted into action is dependent, not only on its own intensity, but also on the resistance which it has to overcome. Thus, fright and fear may present obstacles to the realization of our intention, which can be overcome only by the most strenuous exertion of the will.

The *psychomotor retardation*, which is the most important disturbance in the depressed states of manic-depressive insanity, is probably due to a similar increase of resistance. Such patients require special exertion of the will for almost every movement. All the actions are characteristically slow and weak, except when a powerful emotional shock breaks through the resistance. In severe cases independent volitional action is almost impossible. In spite of every apparent exertion, the patients cannot utter a word, and are unable to eat, stand up, or dress. As a rule they clearly recognize the enormous pressure lying upon them, and which they are unable to overcome. The name "*stupor*" is usually applied to these disturbances, but they are only superficially related to the stupor of catatonia.

In *catatonic stupor* the release of movements in itself is not rendered difficult, as action is occasionally both rapid and powerful. But every impulse is almost immediately followed by the release of an opposing impulse which prevents the consummation of the act. Thus, we often see the desired movement begin all right, but it is immediately interrupted and extinguished by the opposing impulse. Here the impulse is not hindered by internal resistance,

but is simply quenched by a counter impulse. In contrast to the retardation, in which there is a continuous hindrance, one might refer to this as an "embargo." As soon as the embargo is raised, the counter order disappears, and the action goes on without the slightest difficulty.

The *facilitated release of volitional impulses* is a general characteristic of childhood and the female sex. In hysteria it takes the form of permanent, increased excitability. The most diverse impulses give rise to action, not so much on account of their intensity, as because of the lack of the normal restraining influences. In alcoholic intoxication, on the other hand, there is an added motor excitement, which is independent of external stimuli. In maniacal, catatonic, and some paretic patients, besides the facilitated release of impulses there is an increase in the intensity of the movements. On the other hand, in some retarded states in manic-depressive insanity, there can develop an increase of psychomotor irritability without any signs of actual excitement.

HEIGHTENED SUSCEPTIBILITY OF THE WILL

The motives of action have two sources: (1) external stimuli; and (2) those relatively constant principles of action which arise from within rather than from without, and render the individual's conduct more or less independent of his surroundings. The control of actions by these general principles is lacking only in children and unstable individuals. In diseases this control is lost in weakness of the will, increased psychomotor excitability, and in conflict with overwhelming morbid impulses.

Weakness of will is found in all forms of imbecility, where the fixed principles of action are lacking. There is no internal unity or consistency in conduct. The chief char-

acteristic is a *hypersuggestibility*, through which the patients become the prey to every accidental influence. This condition is found in its purest form in paresis. Similar phenomena are induced through suspension of these fixed principles of action by means of hypnotism.

Transient hypersuggestibility is found in catalepsy, where often the limbs of the patient will remain in any position in which they are placed until, as the result of extreme muscular exhaustion, they tremblingly obey the laws of gravity. In this condition there is often found a moderate, but constant, muscular resistance called "*cerea flexibilitas*," in which it is possible to mould the limbs into any desired position. Less often patients are found who will repeat for some time any simple movement, once started, or who will laboriously imitate everything done in their presence (*echopraxia*). In *echolalia* the patient involuntarily repeats every word he hears, although at the same time giving evidence of considerable elaboration of impressions by his ability to solve simple problems. Indications of these symptoms, especially *cerea flexibilitas*, are occasionally observed in the most varied diseases, such as hysteria, epilepsy, maniacal forms of manic-depressive insanity, paresis, and alcoholism; but the whole group of symptoms is most pronounced in *dementia præcox*, especially the catatonic form.

Distractibility of the will is a morbidly easy translation of ideas into action. It usually accompanies heightened susceptibility of the will, but is differentiated from it by a reaction to internal as well as to external stimuli. It is to conduct what the distractibility of the attention is to intellection, and effectually prevents all permanent volitional control of action. Sudden resolutions are half carried out only to yield to new ones. The patients are

wholly under the influence of the environment, whether good or bad. Distractibility of the will is found in certain conditions of maniacal and delirious excitement. It accompanies hysteria and some forms of imbecility as a permanent personal characteristic.

The distractibility of the will may not be equal in all directions, but only in certain specific directions. This is especially characteristic of the catatonic form of dementia præcox. The embargo of the will, described above, is probably an example of this, in which the impulse at the very onset is deflected into an opposite direction. Another disturbance is the *crossing of impulses*, where acts are completed very differently from the way in which they are begun. For instance, the catatonic may push persistently against a locked door toward which he had started, when he could easily leave the room through an open door by a little detour.

In *stereotypy* also there is a morbid persistence of a volitional impulse once started. It is manifested by (1) continued tension of definite groups of muscles, and (2) by numerous repetitions of the same movements.

(1) These patients remain in the same place and attitude for an almost incredible length of time in spite of the greatest discomfort. They stand in the same corner, kneel in a definite place, lie in bed with legs curled up and head extended, so rigid that they can be lifted like a log. Others grip a piece of bedspread with their teeth, or convulsively grasp a piece of bread or torn-off button. The expression of the countenance is also rigid, mask-like, the forehead drawn up as if in surprise, the eyebrows elevated, and the eyes often wide open. The eyeballs are often turned sidewise and the lips are protruded until they look like a snout.

(2) *Stereotyped movements* have an unlimited variety. The patients turn somersaults, rap rhythmically, walk about in peculiar places, hop, jump up and down, roll and creep on the ground, pick at the clothing or hair, and grit the teeth. These movements can be repeated innumerable times, for weeks or even months. In all these movements the patients are absolutely reckless of themselves and their environment. *Mannerisms* are a kind of stereotyped movement, consisting of ordinary movements peculiarly modified. The patients walk with a peculiar gait, drag one foot, go in straight lines or in circles, hold the spoons at the very end, eat in a definite rhythm, and shake hands with stiffly extended fingers. Mannerisms are especially common in speech. Grunts, lisping, peculiar words, phrases and inflection, and numerous repetitions of the same words are among the most frequent forms. Stereotypy is a characteristic of the catatonic forms of dementia præcox, but also occurs in exhaustion psychoses and in paresis, where it is only a transient symptom.

DIMINISHED SUSCEPTIBILITY OF THE WILL

Increased susceptibility of the will in one direction is sometimes accompanied by a diminished susceptibility in another. Thus, in stereotypy the senseless repetition naturally prevents a normal reaction to the environment. This condition is also the basis for negativism, a frequent accompaniment of stereotypy.

Negativism consists in the reaction to stimuli which are the reverse of the normal reaction. Patients do just the opposite from that which they are requested to do: press their teeth together when asked to show their tongue, close the eyes when an attempt is made to examine their pupils, and refuse to answer questions (mutism), although

they sometimes speak spontaneously. They offer the most powerful, but almost always passive, resistance to every external encroachment: will not allow any one to dress or undress them, will not bathe or take care of themselves, and offer strenuous resistance to compulsory feeding, but when unmolested eat greedily. The feces are often retained with the greatest exertion, especially if the patients are taken to the closet. As soon as they are returned to bed, the evacuation immediately takes place.

Negativism is not due to voluntary opposition. Patients sometimes admit after the attack that they do not know why they acted as they did. Negativism, stereotypy, and loss of will probably all have the same basis. They often occur in the same patient, and may be easily made to pass into one another. They are most frequent in catatonia, and are sometimes found in a less pronounced form in paresis, senile dementia, and idiocy.

Catatonic negativism must not be confused with the conscious resistance of terrified patients. In catatonia there is no conscious reason for resistance, and no persuasion can overcome it. It is not influenced by pain, and the manner of resistance is always constrained and often absurdly inappropriate. The stubbornness of imbecility, epilepsy, hysteria, paresis, and senile dementia is closely allied to negativism, but in contrast to negativism it always starts with an idea, and is more or less influenced by persuasion, new ideas, and emotional changes. Moreover, in stubbornness the general emotional attitude is fretful, irritable, and unruly. The patient shows fight, and is often dominated by confused, malevolent delusions, whereas the negativistic patient shows great equanimity, he seldom defends himself, and almost never attacks, but merely resists.

COMPULSIVE ACTS

Compulsive acts are those which do not arise from normal antecedent consciousness of motive and desire, but seem to the patient to be forced upon him by a will which is not his own. As a rule, the patients struggle against the morbid impulses; often caution those about them at their approach, and adopt measures to prevent harm to others. The accomplishment of the act is accompanied by a feeling of relief, and is usually followed by clear insight into the nature of the act, accompanied by chagrin and remorse.

Compulsory acts are generally accompanied by great emotional excitement, and stand in close relation to compulsory ideas and fears already described (see p. 51). These disturbances all originate on a basis of congenital morbid endowment, and are all a part of the symptoms of the constitutional psychopathic states.

IMPULSIVE ACTS

Impulsive acts are distinguished from compulsory acts, in that they do not seem to the patient to be influenced from without, but are the direct expression of a sudden overwhelming impulse, which gives no chance for reflection or resistance.

They are found in the most varied morbid conditions. Probably the pressure of activity in maniacal forms of manic-depressive insanity is of this type. Here belong also the wanderings and assaults of the epileptic (see pp. 342, 343), the excesses of the dipsomaniac, as well as the morbid impulses of hysteria, self-inflicted injury, theft, and fraud. Their origin does not lie in definite feelings of pleasure or dislike, but in marked motor excitement.

The patient's consciousness is dominated by one blind impulse without clear motive or realization of the outcome. The execution is rapid and reckless, and the patients are correspondingly dangerous.

MORBID IMPULSES

A disturbance of the natural impulses is a symptom of all general morbid changes of volitional action. In paralysis and inhibition of psychic processes all the appetites are diminished; in excitement, on the other hand, appetites are increased, especially sexual desires. The latter seldom lead to actual assault, but manifest themselves in ambiguous phrases, abusive language, and by more or less reckless masturbation: in women, by shameless exposures, extreme uncleanliness, or incessant washing with water, saliva, or urine, combing and unloosing the hair; in lighter forms, by adornment and flirtation, by an alternation between seductive, shamefaced, and sentimental manners, by hand pressing, letter writing, significant glances, and the like. Less frequently in maniacal excitement there is found an increased desire for food; although restlessness usually hinders the patients from taking sufficient nourishment. On the other hand, excessive greediness is not infrequently found in idiots, paretics, and especially in catatonics. Incredible quantities of the most unpalatable and disgusting things, sand, stones, seaweed, feces, etc., are sometimes devoured by such patients. In these last cases there is not a simple increase of healthy impulses, but probably a simultaneous perversion of the appetite both in nature and direction. The same is true of the well-known excessive desire for eating suddenly manifested by pregnant women. Much more numerous, however, are the morbid sexual impulses, which in recent

years have been most thoroughly investigated. The most pronounced of these are the *contrary sexual instincts*, in which the sexual feelings and desires are exclusively directed toward members of the patient's own sex.

Sadism consists in the attempt to increase or induce sexual excitement by brutality. In the final stage of its development actual sexual congress is a matter of indifference. In *masochism*, on the other hand, the endurance of pain increases sexual excitation or may be substituted for it. The satisfaction of sadism appears to arise from the feeling of absolute power over the victim, while that of masochism arises from the most complete subjection to the will of another. In *fetichism* particular articles of clothing or parts of the body become either the necessary adjuncts for satisfactory coitus, or the simple observation or contact with the fetich may satisfy the sexual impulse. The most common fetiches are boots, shoes, handkerchiefs, underclothing, and finally velvet and furs.

Besides the perversion of normal impulses as seen in the above, there is a group of morbid impulses which seem to bear no relation to normal life. Such are *kleptomania*, the irresistible impulse to steal all manner of worthless and useless things; *pyromania*, the impulse to burn. Both these usually arise on the basis of an epileptic or hysterical endowment.

The whole series of abnormal impulses are partial symptoms of a general morbid endowment, and indicate congenital degeneracy. It is possible that kleptomania and pyromania should be regarded as compulsive acts. The impulse appears as an obtrusive compulsion which is resisted as long as possible, while the performance of the act is accompanied by a feeling of relief.

DISTURBANCES OF EXPRESSION

The movements by which patients express their ideas, feelings, and impulses are among the most important clues to morbid psychic impulses. A full delineation of the symptoms of the various disease types occurs in the clinical portion of this work. In this place we confine ourselves to a few characteristic indications.

Dementia præcox is indicated by lack of interest, notwithstanding accurate apprehension, by listlessness, strained attitudes, senseless grinning or laughter, with sudden impetuous movements. Paretics may often be recognized by their awkward friendliness and production of silly expansive ideas. Depressed patients sit around collapsed and flaccid, with troubled expression. Their movements are slow and laborious. The apprehensive patients are restless, bite their nails and wring their hands. In extreme retardation, they lie motionless in bed with fixed expression and whisper their answers with great exertion. The manic-depressive, on the contrary, moves rapidly about, talks, cries, sings, plays tricks on his fellows, and busies himself with all sorts of things. The hysterical patients arrange their clothing and hair to make an impression. The paranoiac endures his hospital confinement with dignity, carrying with him the documents which prove all his pretensions.

Alterations of speech and writing are of the greatest diagnostic value. Delusions are usually betrayed by the content of the communications. In maniacal patients there is incessant babbling, with a tendency to puns and rhymes. This is also found in excited paretics with more or less disturbance of articulation. In both diseases speech may be reduced to an incomprehensible gibberish, though from different causes.

In retarded patients speech is low and difficult. Melancholiacs express their thoughts laconically, and often keep up a monotonous lamentation. Catatonics are often mute for weeks at a time, and then suddenly begin to speak fluently or sing, although more or less confusion of speech is always present. Their stereotypy is manifested by constant repetition of the same words, phrases, or even senseless syllables, while they frequently make up entirely new words.

Disturbances of writing correspond both in content and form with those of speech. The manic-depressive patient fills sheet after sheet of paper with large, showy, and hastily written characters, which are often illegible even to the writer. The parietic's writing shows omission, misplacement of words and syllables, blots, untidy corrections, and uncertainty. Hysterical patients use innumerable marks for emphasis. In melancholiacs the individual characters are incomplete, small, and crowded. The same is true in retardation. Catatonic patients cover the paper with unintelligible scrawls, endlessly repeated (written verbigeration).

CONDUCT ARISING FROM A MORBID BASIS

Since conduct is the expression of the entire psychic life, we readily understand why it is more or less seriously disturbed by morbid changes in any part of the psychic individual, while, on the other hand, no isolated act can be taken as an infallible index of the exact morbid condition. Delusions of sinfulness impel patients to penance, self-mutilation, or suicide. Delusions of persecution lead to mysterious precautions, to misanthropic isolation, to restless wandering, or even to outbursts of rage and murderous attacks against supposed enemies. Hypochondria-

cal delusions may lead to revolting smearing, self-mutilation, or injurious and absurd curative attempts, often with the evident purpose of attracting attention and sympathy.

Mental excitement very soon leads to conflicts with the environment, to breaches of the public order, and quite often to resistance to civic authority. Patients behave in a reckless and striking manner. They are ungovernable, irritable, and violent under contradiction and restraint. At first they act as if intoxicated, and later become still more restless and even dangerous. There is usually also a tendency to sexual excesses, in which they indulge without regard to decency or morality. Such excited states are regularly accompanied by all sorts of mad pranks, destruction of property, adventurous journeys, brawls, and public scandals. When associated with expansive ideas, the patients purchase large amounts of useless stuff, prepare for mythical undertakings, and spend large sums of money. The idea that everything in their neighborhood belongs to them induces the patients to innocently appropriate whatever they happen on, to embezzlement or to fraud.

Paranoiacs systematically prepare their claims, address letters to prominent officials, and publish pamphlets. In their attempts to compel notice they appear on the street in unusual costumes, attack prominent persons, and create public scandals. Love-letters, proposals, etc., are directed at the supposed secret lover. The religious paranoiac founds a church and seeks a martyr's crown.

FORMS OF MENTAL DISEASE

FORMS OF MENTAL DISEASE

I. INFECTION PSYCHOSES

THE mental disturbances here described are supposed to develop primarily from toxins of infectious diseases.

They are fever delirium, infection delirium, and psychoses characteristic of the post-febrile period.

Fever delirium follows rather closely the clinical course of the fever, and in a measure depends upon it. The infection delirium corresponds to the initial deliria of other authors, appearing at, or near, the onset of infectious diseases, independently of fever. The remaining group includes the various forms of mental disturbance which follow the infectious disease, developing during or following the fever, and are apt to lead to permanent mental enfeeblement. Other writers describe these under the various diseases which they accompany; as, typhoid delirium, pneumonic delirium, influenza insanity, and insanities following exanthemata. The mental symptoms arising from the toxins of the different infectious diseases cannot as yet be sufficiently differentiated to permit of their being considered as characteristic of the corresponding disease. The only distinguishing features are the physical symptoms characteristic of the different diseases. It is still a question whether the changes in the cortical neurones are due directly to the toxins produced by the

micro-organism, or to an autotoxin developing within the body as a result of the infectious disease.

A. FEVER DELIRIUM

The clinical picture of fever delirium presents different grades corresponding to the intensity of the toxic action upon the cortical neurones, varying from moderate irritation to paralysis and finally to complete destruction.

Etiology. — The form of febrile disease has very little influence on the type of delirium, which apparently is modified only by the rapidity of the development of the fever, its intensity, and duration. Besides the toxin produced in the febrile disease, the rise in temperature, acceleration of metabolism, and disturbance of circulation should be regarded as causative factors. In addition there should be included alcohol, which plays such an important part in pneumonia, and the individual powers of resistance, as it is well known that children, women, and nervous men show a tendency to develop delirium with any severe form of fever.

Symptomatology. — In the lightest grade of fever delirium there is irritability, some restlessness, general hyperæsthesia, insomnia with anxious dreams, a feeling of numbness in the head, and a desire to be left alone.

In the next grade there is a marked clouding of consciousness; illusions and hallucinations largely dominate ideation, rendering the association of ideas dreamy. The designs on the carpet and ceiling appear as moving forms or grinning faces, the bedpost assumes the form of an angel. Frightful outcries or beautiful music are heard, patients have airy floating sensations, and are led about through gorgeously decorated rooms. These dreamy experiences are interrupted momentarily by a return to

normal consciousness. The emotional attitude becomes either much exalted or depressed. The activity increases greatly.

In the third grade the disturbance of consciousness becomes very pronounced, ideation is completely incoherent and irrelevant. There are many varied emotional outbreaks and frequent wild impulsive movements, which soon become irregular and uncertain, indicating the onset of paralysis. The great restlessness is interrupted by short periods of sleep.

In the fourth grade the movements become absolutely purposeless. At this time carphologia appears with sub-sultus tendinum. The utterances become indistinct, and consist in mumbling over incoherent words and sentences. From this the patient may enter into a state of coma vigil, when, in spite of open eyes, he is oblivious to all his surroundings and unable to indicate his desires. The urine and feces are passed involuntarily.

Course.—The duration of the psychosis in three-fourths of the cases does not extend beyond one week, the delirium usually subsiding with the temperature. Some of the delusional ideas held during the disease may be retained for a long time. One patient during the delirium attending pneumonia believed that his brother had misconducted the business and appropriated funds for his private use, which idea he held for several months after complete convalescence.

The **prognosis** is naturally poor because of the severity of the initial disease. If the delirium advances to the third or fourth degree, at least one-third of the cases die. Where there is hyperpyrexia the prognosis is extremely doubtful. A few cases emerge from the fever delirium into an exhaustion psychosis, or may end in dementia.

Finally, the delirium may be the starting-point of other psychoses, as manic-depressive insanity, dementia præcox, or dementia paralytica.

Besides the **treatment** of the initial disease, the ice cap should be applied to relieve cerebral hyperæmia. Cold baths or cold packs with friction are most serviceable. In case of cardiac weakness one must be cautious in the use of the bath, and if necessary administer a cardiac stimulant. For this purpose strong coffee is very valuable. Antipyretics in this condition are not only useless, but often aid in producing the delirium. One of the most important indications is constant attendance, both to prevent harm to others and injury of the patient by escaping out of doors or jumping out of windows. Where there is very great excitement, it is usual in general hospitals to make use of restraint sheets or canvas jackets. The same result is accomplished in the insane hospitals through the assistance of a restful and clever nurse, together with the bed treatment and prolonged baths (see p. 89). If impulsive movements are a prominent feature, it may be necessary to improvise padded beds with high sides, or to resort to padded rooms. The use of hypnotics and narcotics is distinctly contraindicated.

INFECTION DELIRIUM

In this group of psychoses are classified mental disturbances believed to arise from the specific toxins of hydrophobia, typhoid, smallpox and malaria, because they appear independently of temperature.

Pathological Anatomy. — Nissl has reported one case in which there was distention of the vessels of the cortex, with increase of white blood corpuscles and pronounced

degenerative changes in the nerve cells. The cell bodies were swollen, the chromophiles were dissolved, and the processes diffusely stained for some distance. Karyokinesis was observed in nuclei of the glia cells. These changes, which are similar to those produced by experimental intoxication, tend to prove that we have to do with a psychosis depending upon intoxication.

Symptomatology. — In the initial delirium of typhoid, which develops at the beginning of the disease, there are, according to Aschaffenburg,¹ two distinct forms. The delirium of one is quiet and accompanied by pronounced delusions and hallucinations. The patients believe themselves poisoned and persecuted in various ways, are damned and cursed, distant relatives are heard talking to them, they see fire and threatening forms. Sometimes they relate frightful and adventurous experiences. In emotional attitude they are sad and anxious.

The other form of delirium, which may develop directly from the first, bears the signs of intense excitement. There develop very rapidly delirious confusion with flight of ideas, hallucinations, incoherent delusions, marked anxiety, and silly, impulsive movements.

This second form is characteristic also of mental disturbance, appearing at the onset of smallpox and replacing the fever in malaria. In malaria the mental disturbance is intermittent, often entirely replacing the rise of temperature, and sometimes the other characteristic symptoms. It occurs most frequently with the quartan, and seldom with the tertian or quotidian forms. Since the general use of quinine, this mental condition is rarely encountered.

In smallpox, during the formation of pustules, between

¹ Aschaffenburg, Allg. Zeitschr. f. Psy. LII.

the eruption and pus fever, there is a characteristic mental disturbance, which, it seems, must be due to intoxication. Clear hallucinations of sight and hearing suddenly appear, while the patients remain perfectly conscious; in fact, they are only annoyed by the sensory disturbances. They see persons walking around the room, blossoms flying about in the air, hear music, curses, indictments for theft or arson and are sought by the police.

Besides the psychical disturbances in these infection psychoses, there are present the various physical signs characteristic of the initial diseases; the convulsive movements of hydrophobia, the weakness and headache of typhoid, the prodromal eruption of smallpox, and the enlargement of the spleen in malaria. Sometimes there appear epileptiform convulsions, hemiparesis, and disturbances of speech.

The **course** is varied. In hydrophobia there may be clear intermissions. In the initial delirium there is often a remission during the day in which the patients remain somewhat stupid and disoriented. The duration is rarely longer than a week.

The **prognosis** varies. In hydrophobia the delirium ends in a fatal collapse. In typhoid the condition may clear up with a marked fall of temperature, or it may pass over into a characteristic fever delirium. Only forty to fifty per cent. recover. The prognosis in malaria is favorable.

The **treatment** in a great measure can be only symptomatic. Some believe that they have secured beneficial results from a thorough flushing of the body combined with salt infusion. In malaria the mental disturbance responds immediately to quinine.

PSYCHOSES CHARACTERISTIC OF THE POST-FEBRILE PERIOD
OF INFECTIOUS DISEASES

The onset of these conditions usually occurs before the subsidence of the fever. In some cases, however, they do not appear until after the disappearance of the fever, bearing the same relation to the infectious disease as do neuritic sequelæ; as, for example, paralysis following diphtheria. Not all psychoses following the infectious diseases belong to this group, as dementia præcox or attacks of manic-depressive insanity may appear at this time.

Symptomatology. — The mental disturbances show in common a more prolonged course and a tendency to mental deterioration.

The *lightest* form of psychosis is represented by those cases of mental and physical weakness which appear during convalescence from severe attacks of infectious diseases. After the subsidence of the fever, the patients fail to show their former energy. They are dull and heavy, constrained, and are very susceptible to fatigue. They cannot collect their thoughts, and find it difficult to read and write. They are indifferent, idly lie abed, and do not exert themselves to even concentrate their attention upon what is being read or spoken to them. There is no disturbance of consciousness or apprehension. There may be transient hallucinations, when for a few moments they hear unintelligible sounds, see faint visions, or experience peculiar bodily sensations. In emotional attitude they are rather sad and melancholic, sometimes irritable, occasionally anxious, especially at night. They may at times exhibit a distrust of their surroundings, transitory fear of poisoning, hypochondriacal ideas, and even delusions of persecution, the latter associated with aggres-

sive attacks and attempts at suicide. In actions they are inclined to be reserved, silent, and reticent about their delusions. Physically, sleep and appetite are much disturbed.

This condition most frequently follows pneumonia and rheumatism, and sometimes diphtheria. The duration varies from weeks to months.

In the *second* group the following symptoms appear in the course of the fever: marked clouding of consciousness, numerous delusions and hallucinations, and anxious restlessness. The patients become completely disoriented, do not recognize their friends, claim that God or the Virgin Mary appears to them, that the bed moves, they are lying in a morgue with corpses about them, faces peer in at the open window, some one is after them, they are dismembered and about to die. Their speech is confused and incoherent. The confusion continues even after the temperature has subsided and the symptoms of the initial disease have disappeared. Gradually the patients become clearer and more composed, but the hallucinations and delusions persist. They still hear threatening voices, see grinning faces looking in at the window, and must get out of the bed and at them. Some one pulls the bedding, the food is not genuine, they are poisoned, no one is willing to do the right thing for them. In manner and actions they are obstinate, resistive, refusing nourishment, grumbling, anxious, and even yield to emotional outbreaks and suicidal attempts. They lose weight rapidly, sleep poorly, and are restless.

As the appetite and sleep improve, the hallucinations and delusions disappear. They gain insight into their condition, begin to busy themselves, and resume their accustomed manner and conduct. A certain unusual sus-

ceptibility to fatigue, and absence of the wonted mental and physical energy, together with weakness of memory, persist for some time. A few cases never completely recover. A fatal termination is rare, and always due to some complication. The duration varies from several months to a year. This form follows especially typhoid, smallpox, articular rheumatism, and cholera.

In adults there may be some difficulty in differentiating this condition from *melancholia* of involution. It is to be distinguished by the history of the infectious disease, the greater prominence of hallucinations, the predominance of delusions of persecution over self-accusations, and the great irritability in contrast to the anxiety of the melancholiac. It is to be differentiated from *dementia præcox* by the great disturbance of apprehension and orientation at the onset of the disease, and by the absence of mannerisms; from the depressive forms of *manic-depressive* insanity by the absence of psychomotor retardation.

The *third* group, which is the most severe, begins with a condition of pronounced delirium, which soon passes into a stuporous state. In spite of improvement in the physical condition, the patients continue dull, and incapable of perceiving and elaborating external impressions. In emotional attitude they are indifferent, quiet, or childishly restless and sometimes whining. They lie in bed unable to take their food or care for themselves, and have to be petted and handled like small children.

Physically, they fail in nutrition, and occasionally give evidence of severe cerebral disorder, especially hemiplegia, disturbance of speech, and epileptiform attacks.

The prognosis is more unfavorable than in other forms; only one-half of the cases recover after an extended course.

The patients present as residuals, a weakness in will-power, a lack of judgment, and they are forgetful and indifferent. The condition is distinguished from the stupor of the catatonic state by the absence of negativism and the stupor of the manic-depressive by the absence of retardation.

The **treatment** of all these forms consists of rest in bed, a most nutritious diet, cleanliness, and careful watching.

Finally, under this head, we have the *psychosis accompanying polyneuritis* (Korssakow's disease), which is characterized by marked disturbance of attention and defective memory, with pronounced fabrications.

The **pathological anatomy** thus far has revealed a certain amount of atrophy in the cortex, due mostly to a marked shrinkage in the tangential fibres, in which the cells participate very little.

Symptomatology. — The onset of the disease is sudden, sometimes with a condition of delirious excitement. Patients are confused, disoriented, restless, and anxious, especially at night. Hallucinations of sight also appear, but the prominent symptom is the striking inability to remember passing events, in spite of the retention of clear apprehension. Incidents of their early life, and even events which have happened but a few moments before, are not remembered. They do not remember having just received a visitor or that they have had dinner, have taken a walk, or received a letter. They forget having just related an incident, and consequently are constantly enumerating over and over again the very same facts, asking the same questions, and expressing similar desires several times during the same visit. In this defect of memory the time element especially is de-

fective. They cannot tell whether an event occurred yesterday, a week ago, or a year ago. These gaps of memory are filled in with numerous fabrications. The patients relate with all frankness and in all detail journeys and visits which they have recently made, and speak of children which really do not exist. They relate the same incidents with different details, and speak of conversations with relatives long dead. If these inconsistencies are pointed out to them, they are apt to become much irritated. In emotional attitude they are anxious at first, but later become quarrelsome, irritable, or indifferent. Sometimes they are childish and easily provoked to whining. *Physically*, besides the characteristic polyneuritic disturbances, there is insomnia, loss of appetite, and defective nutrition.

The course is protracted. In a few cases death ensues from paralysis of the heart or through coma. Improvement appears very gradually, and in a few cases progresses to recovery in five to nine months. In other cases after the consciousness becomes clear there still remains a pronounced defect of memory, with perhaps continued fabrications, irritability, and a great susceptibility to fatigue. If alcohol has been the exciting cause, the prognosis is less favorable. This form in rare instances has occurred without the accompanying polyneuritic symptoms, as the result of intoxication in tuberculosis, typhoid, and infections of the alimentary canal.

Diagnosis. — Korssakow's disease is apt to be confounded with *dementia paralytica*, in which there may exist a similarly defective memory with fabrications and neuritic disturbances. The differentiation depends upon the history of the exciting causes, the more rapid onset, and the absence of speech and pupillary disturbances.

Furthermore, in dementia paralytica the judgment is apt to be as much affected as the memory. *Senile confusion* presents a similar picture, but in it the mode of onset is different, while silliness and egotism are more striking.

The **treatment** is similar to that indicated in the other forms, besides attention to the neuritis.

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II. EXHAUSTION PSYCHOSES

Nervous exhaustion, which is due to excessive abuse and inadequate restoration of nervous elements, gives rise to two groups of psychoses; collapse delirium and amentia, and chronic nervous exhaustion.

Collapse delirium and amentia, which differ only in the intensity and duration of the symptoms, develop as a result of profoundly exhausting conditions, following most frequently childbirth, loss of blood, and acute diseases, and are characterized by marked psychomotor disturbances, with profound involvement of apprehension, and with great incoherence of thought.

Chronic nervous exhaustion (acquired neurasthenia) follows prolonged and excessive mental strain, develops more gradually, and is characterized by various physical signs and moderate psychical disturbance.

COLLAPSE DELIRIUM

This psychosis is characterized by an acute onset with profound clouding of consciousness, complete disorientation, great incoherence of thought, dreamy illusions, hallucinations and delusions, a rapid course, and a fairly favorable prognosis.

Etiology. — Among the exhausting conditions giving rise to collapse delirium, childbirth is the most prominent; others are loss of blood, excessive mental strain, mental shock, and deprivation with worry. The acute diseases which may lead to this condition are pneumonia, influenza, ery-

sipelas, measles, and scarlet fever. Oftentimes a fright occurring while the patient is in a weak condition acts as the exciting cause. Defective heredity is present in one-half of the cases.

Pathological Anatomy. — Unfortunately but few cases have been examined pathologically. Alzheimer,¹ in cases which seem to belong to this group, found throughout the cerebral cortex a fine granular disintegration of the chromatic substance of the nerve cell body, with staining of the achromatic substance, and without much involvement of the nucleus.

Symptomatology. — Following a few days of insomnia and restlessness, there develops very rapidly a condition of motor excitement with clouding of consciousness, dreamy hallucinations and delusions. The orientation is quickly lost; everything about the patients change, they are no longer at home, but are among enemies and thieves, in cathedrals, in heaven or beneath the earth. Numerous illusions and hallucinations appear; the designs on the carpet assume the form of threatening figures, gas light appears like the sun, neighbors are passing to and fro, and they hear beautiful music. Cars rush by, their own name is called out, and troops approach.

They become noisy and talkative, the content of speech shows great incoherence, sometimes with a flight of ideas, many alliterations, rhymes, and repetitions, which are as often sung as spoken. They develop numerous delusions which are varied, incoherent, changing, and both exalted and depressed. They have been tried in court and are awaiting their death sentence, have been robbed and are now to be poisoned. Christ has appeared to them, announce-

¹ Wanderversammlung d. suedwest Neurolog. u. Irrenaezte zu Baden-Baden, 1897.

ing that they have a mission to perform, they are possessed of immense wealth, are about to give a large dinner, are married and have given birth to children, or are on the way to interview the President. In emotional attitude they are much exalted and sometimes erotic, especially in puerperal cases; depression with anxiety, however, may predominate the emotional tone. Occasionally irritability is prominent with exhibitions of passion.

The motor excitement is very pronounced; the patients remove their clothing, race about the room, overturn furniture, pound the door, throw the bedding out of the window, and try to get out themselves. They are destructive and untidy. Very often they indulge in the most reckless and impulsive movements, their whole activity seeming to be lost in a mixture of confused impulses. They prattle away incessantly, sometimes in a whisper, now at the top of their voice, and again gesticulating and clapping their hands. The attention cannot be attracted. Questions asked are rarely answered. Orders are not obeyed; on the other hand, they almost always exhibit a purposeless resistance to everything, even to bathing and dressing.

Physically, following the onset and during the height of the disease, there is great insomnia. If the patients sleep at all, it is only for short intervals. Likewise they take but little nourishment, in many cases requiring mechanical feeding. The condition of nutrition is very poor, and there is a marked loss of flesh and physical weakness. The skin is cool and pale, the temperature usually subnormal, and the pulse weak and irregular. The reflexes are usually exaggerated. Tremor is sometimes present, and there is some tendency to acute decubitus.

The course is short, the condition rarely lasting over

two weeks. The return to consciousness is usually sudden, often following a sound sleep. When the patients awaken, the hallucinations and illusions have disappeared; they are conscious of their surroundings and ask for nourishment. On the other hand, the condition of motor excitement disappears gradually. The patients continue to be talkative, perhaps showing a flight of ideas, some exaltation, grumbling, and fretful manners. There is also a feeling of physical weakness with the desire to remain in bed. As they begin to take nourishment, the weight increases rapidly. Relapses are rare.

Diagnosis. — Collapse delirium is differentiated from the condition of *epileptic dazedness*, in which there is confusion, disorientation, and many hallucinations, by the presence of flight of ideas and aimless impulsive movements not associated with ideation. In *delirium tremens*, which may be confused with this condition, the hallucinations, which are usually of a religious nature are more fantastic and terrifying, animal shapes being present. The attention can be held and short coherent responses obtained in delirium tremens, which is impossible in collapse delirium. The condition of *catatonic excitement* is of more gradual onset, rarely follows exhaustion, the consciousness is comparatively clear, with only slight disorientation, and the movements are far more stereotyped. The delirious excitement of *dementia paralytica* can be differentiated only by the history of preceding mental deterioration, the presence of undoubted physical signs, and the extreme extravagance and absurdity of the delusions. The delirious mania of *manic-depressive* insanity, in the absence of a history of previous attacks, is very difficult to distinguish from collapse delirium. One can only say that the latter is characterized by a greater disturbance of apprehen-

sion. *Amentia* is differentiated by the longer course and the distractibility of the attention.

The prognosis is quite favorable. Death occurs in a few cases as the result of collapse, especially where the exciting cause has been very severe.

Treatment. — The important indications are to maintain nutrition and to reduce excitement. The patients must receive a sufficient quantity of light liquid diet, to accomplish which it is often necessary to resort to forced feeding by stomach or nasal tube. Alcohol in combination with milk and egg is extremely valuable, given in doses of one to two ounces (forty to sixty grammes). Broths and peptonized meats may be added in small quantities. Where mechanical feeding is contraindicated because of vomiting, or abrasion and hemorrhage of the mucous membrane, nutrient enemata can be substituted. Also infusion of warm normal salt solution, one to two pints (five hundred to one thousand cubic centimetres), give excellent results, especially if there is impending collapse. The infusion should be given under low pressure in the back, rump, or breast. The best means of inducing quiet is by means of a prolonged warm bath. The bath should be given at ninety-eight to one hundred degrees, and may last from fifteen minutes to one and even several hours. During this time cold cloths must be kept on the head. If the patient exhibits fear in getting into the bath and requires holding, the bath can do but little good. In such cases one may give a hypodermic injection of hyoscine hydrobromate, $\frac{1}{200}$ to $\frac{1}{120}$ grain, or sulphonal, fifteen grains, in combination with the bath for the first few times. The patients may even fall asleep in the bath. Hypnotics are usually contraindicated. Next to the bath, alcohol is of the most service in producing sleep. In collapse, hot

coffee by mouth or rectum, strychnia, or digitalis are indicated.

It is necessary that the patient be isolated in a place where there is quiet, and sufficient attendance to keep him in bed. Mechanical restraint should be withheld; a padded bed or room is preferable. Constant attendance must be enforced in order to prevent injuries, and this must be observed until convalescence is well established. During convalescence the same indications obtain here as in convalescence from any acute disease; careful feeding, in which alcohol should be employed, warm baths, and freedom from all forms of excitation. Finally, the patients must have completely recovered before being permitted to take up their former duties. A good index of this is found in the weight, which should always return to normal.

ACUTE CONFUSIONAL INSANITY (AMENTIA)

This psychosis is characterized by the sudden appearance of dreamy confusion with numerous hallucinations, delusions, and motor excitement, following a condition of severe exhaustion, and running a favorable course of two or three months' duration.

Etiology. — The etiological factors are similar to those in collapse delirium, except that typhoid fever and anæmia are more frequent causes.

Pathological Anatomy. — The post-mortem observations, thus far reported, present widespread cellular changes in the cerebral cortex. While these lesions, consisting of more or less disintegration of the Nissl granules and staining of the achromatic substance, both with and without extensive involvement of the nucleus, are almost always present, they cannot be regarded as pathogno-

monic, as they occur in various somatic diseases. Besides the cytological changes, there has also been noticed hyperæmia of the meninges and of the brain substance, with infiltration of leucocytes into the perivascular and pericellular spaces, and beginning hyaline changes in the small cerebral vessels.

Symptomatology. — At first the patients are anxious, restless, and forgetful, sometimes complaining of numbness and confusion in the head, and inability to gather their thoughts or concentrate their attention. In the course of a few days, illusions appear, the confusion increases and there is complete disorientation. Their surroundings seem changed, and they do not recognize their relatives. There are *hallucinations* of all the senses. The patients see strange faces and hear strange voices, birds are flying about, lions are roaring, poisonous powder is thrown at them, and they are threatened and cursed by strangers. The numerous hallucinations form the basis for many depressive *delusions*, which are dreamy, incoherent, contradictory, and often repeated. Their children are dead, the home is lost, the devil has secured them, they are to be hung, are under the influence of some magnetic power which draws them about, and in the end will consume them. In a few cases the delusions are expansive; they believe themselves exalted to some high position, possessed of great wealth, they have been around the world, will convene Congress, and will send an army to Cuba. Sometimes they fabricate extensively.

The patients are *unable to apprehend correctly*, they do not know where they are, mistake friends, and lose all track of time. The *attention* is attracted to the surroundings, they endeavor to grasp what transpires, and it is usually possible to direct the train of thought by objects

held before them, by movements and gestures; yet they cannot understand readily even the simplest occurrences. To some of these patients everything is changed, things to-day are not the same as yesterday, the chairs and windows are different, even the nails in the floor are changed, they are being served with different dishes, the strokes of the clock are not right, the papers are incorrectly dated.

The *disturbance of thought* is very prominent. They are quite unable to express one thought before others interrupt. Words and sounds are caught up from the surroundings and find a place in their expression, though not necessarily influencing or directing the train of thought. Often the content of speech is made up of single, incoherent, and disjointed words and phrases. Occasionally sound associations and rhymes are heard. In spite of distractibility, flight of ideas, and complete incoherence, one occasionally finds the patients holding to single indefinite ideas, usually of persecution. The consciousness is much clouded and dreamy. The persistence of clouded consciousness during quiet intervals is a characteristic feature.

The *emotional attitude* varies considerably, sometimes with prevailing happiness, but more often with depression. Alternations of the attitude are characteristic; for short periods they may be elated, mirthful, and hilarious, with perhaps some sexual excitement, when they suddenly become excited and irritable, or they may be even dull and stupid.

In the *psychomotor* field there is a marked tendency toward great activity. They move about restlessly, crawl in and out of bed, destroy clothing, pound and beat, but the actions are not very quick, are performed without

much energy, are planless, incoherent, and protracted. This motor excitement is intermittent.

Physically, the sleep is much disturbed, the appetite is poor, and sometimes there is complete refusal of food, especially when great motor excitement is present, or where the patients entertain ideas of distress. Other physical signs are increased deep reflexes, slow pulse, and subnormal temperature.

Course. — The height of the disease is reached within two weeks, during which time there may have been transitory remissions with clear consciousness and insight. From that time the symptoms present a rather characteristic fluctuation. The motor excitement may disappear, and the thoughts become coherent, when the patients again develop excitement with complete incoherence of thought. Genuine improvement develops gradually. First the motor restlessness disappears, even while there still remains great incoherence. Then the patients become oriented, are able to gather their thoughts and express themselves coherently. Even after they have become clear, long conversation or letter-writing tends to develop mental confusion. During the first few weeks of the convalescence the emotional attitude may show a slightly elated or depressed condition, seen in hyperactivity and garrulity, or in distrust, anxiety, and irritability. The entire course extends through three to four months. In some severe cases, even after the patients have become clear, a few hallucinations may persist for a short time, and occasionally indefinite expansive or depressive delusions are expressed. In actions they will show some constraint, irritability, and outbreaks of passion, or they may be haughty and reserved. Even after all the symptoms of the disease have disappeared, the patients are very apt to show diminished

power of resistance, greater susceptibility to fatigue, and excesses are apt to create relapses. The weight rises rapidly during convalescence.

Diagnosis. — In differentiating this form from other psychoses it is necessary to bear in mind the causal condition,—exhaustion,—the acute onset, and the characteristic symptoms; namely, difficulty of clear apprehension in spite of the ability to maintain the attention, delusions and hallucinations, distractibility, profound disturbance of thought with confusion and sometimes flight of ideas, changing emotional attitude, and motor excitement.

From the maniacal form of *manic-depressive* insanity, amentia is distinguished by the much greater prominence of the disturbance of apprehension than of the psychomotor sphere, the former of which persists even after the motor excitement has in a great measure subsided, while in the maniacal state, in spite of great motor excitement, the patients usually give evidence of at least a partial comprehension of the environment. In amentia the movements are slower, more planless, and less precipitous, and, in quiet intervals, when they have quite disappeared, the patients are still hazy and confused. The condition of *catatonic excitement* is distinguished by the fact that the catatonic patients in the midst of the greatest excitement are usually able to comprehend their surroundings, to reckon time correctly, to recognize persons, and to record some passing events; and besides this, they present the characteristic catatonic signs; namely, catalepsy, negativism, verbigeration, mutism, and stereotyped movements and manners.

The **prognosis** is favorable. Death rarely occurs, and is due to collapse, heart failure, sepsis, and phthisis. This psychosis rarely leads to permanent mental impairment.

The **treatment** coincides with that of collapse delirium, consisting of forced rest in bed and prolonged baths to induce quiet, aided by moderate doses of alcohol. Occasional doses of hyoscine, trional, sulphonal, bromides, or paraldehyde in extreme excitement are of value and better tolerated than in collapse delirium.

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ACQUIRED NEURASTHENIA

CHRONIC NERVOUS EXHAUSTION

THE condition of chronic nervous exhaustion is the result of excessive mental application continued for some time. It is one of the products of civilization, and is confined largely to the professional and clerical callings, and to women of the middle classes. It is characterized by *irritability, defective mental application, increased sense of fatigue, and a great variety of physical symptoms, including hypochondriasis.*

Acquired neurasthenia, as used here in a restricted sense, must be clearly distinguished from the congenital or hereditary neurasthenia of the French authors, which is here considered as one of the constitutional psychopathic states. No doubt there are many transitional states between the two diseases, and especially where defective heredity and external exhaustion are both prominent factors. The difference in the train of symptoms, their course and outcome, in individuals free from hereditary taints, it seems, are sufficiently distinctive to justify this restriction of acquired neurasthenia.

Etiology. — Rapid, irregular, and extravagant manner of living, with little relaxation and lack of sufficient and wholesome sleep in individuals actively engaged in business or taxed with the responsibilities of the household is distinctively characteristic of the American in the temperate regions, and accounts for the greater prevalence of

this disease in our people. It is almost as prevalent among Russians. Besides excessive mental application, the worry attendant upon responsibility is an important factor. It appears at all ages, but is most often met between the ages of twenty-five to forty-five, the period of life during which there is the greatest mental strain.

At an earlier age it is seen in ambitious students who apply themselves too closely to studies without relaxation. Neurasthenia occasionally appears after a severe illness or mental shock.

Symptomatology. — The symptoms in both the physical and psychical fields are equally prominent. Of the mental symptoms, the first to appear is *irritability*, keenly appreciated by the patient, at the beginning overcome by the will, but under stress of excitement always coming to the surface and causing annoyance. The patients are very easily irritated, become unreasonable and fault-finding. Trivial matters may lead to outbursts of passion over which they have no control. At home the frolics of the children irritate them beyond endurance. Instead of these signs of irritation, one sometimes meets the opposite condition, when the patients are indifferent, with absence of the usual sympathetic feelings, stupid and dull, sluggish and sleepy, and overcome with an irresistible drowsiness.

The *capacity for mental application* diminishes rapidly. The accustomed work is carried out with increasing difficulty, requiring greater exertion and more frequent rests. They are easily distracted by little things and are inattentive. Twice the usual time is spent in reading the paper, and still they are unable to get an idea of its contents. They are forgetful with names and figures; columns of figures have to be added several times before the correct

sum is obtained. They are embarrassed by their inability to recall the names of well-known acquaintances. The trend of thought in a letter or conversation may be abruptly broken off and forgotten, much to the chagrin of the patient, who tries to continue. The ability to originate and create disappears, and the patients find themselves confined to that which is purely routine in thought and action.

There is not only a keen insight into these defects, but also a tendency to exaggerate the real symptoms. They assert that the memory is becoming profoundly affected, and that the judgment is failing. The physical symptoms are even more strongly exaggerated, which aids in increasing their misery. The excessive anxiety about the condition of their health leads to a characteristic symptom, *hypochondriasis*, in which there is a tendency to pay undue attention to trifling symptoms which may appear in any organ. The patients believe that they are suffering from some incurable disease, and especially the one which they have most dreaded. There may be some genuine disorder, but the real symptoms are greatly enhanced by the habitual attention paid to them. Canker in the mouth is considered infallible evidence of syphilis; a cloudy urine indicates Bright's disease, and a cough, that they are succumbing to consumption.

The appreciation of their incapacity creates a feeling of reserve, timidity, and a lack of self-confidence. They cannot trust themselves in public, apprehending fainting spells on the slightest exertion. It rarely happens that the feeling of despair becomes intense enough to lead to suicidal attempts. Associated with the loss of will-power, there should also be mentioned the tendency to compulsive thoughts and impulsive acts, which sometimes explains the

suicidal attempts. Here are included the various phobias, which are fully described in the constitutional psychopathic states. In the strife to overcome impulsive ideas, the patients often reach an emotional crisis of short duration, with restlessness, wringing of the hands, crying and moaning, and even attempts at suicide.

These states are more apt to follow continued excitations, such as prolonged visits or unusual noisiness.

Physical symptoms form a very characteristic feature of the psychosis. The most important symptoms are headache, insomnia, general muscular weakness, paræsthesias, cardiac and gastro-intestinal disturbances. *Cephalalgia*, which appears early, may be expressed as a headache, a feeling of numbness or a pressure in the head, which interferes with work. This is usually situated over the eyes or in the occiput, and increases with exertion until it becomes unendurable. It is more prominent in the morning, passing off during the day. Sometimes there is a feeling of pressure, as if the head were held in a vice or by a constricting band. It may be associated with vertigo, dimness of vision, roaring in the ears, or painful pressure points in the scalp.

Insomnia is usually an aggravating symptom from the onset. The few hours of sleep, obtained either immediately upon retiring, or in the early morning, after hours of restless tossing, are unrefreshing and disturbed by dreams. The general muscular weakness is always in evidence; they are always languid, and tire easily upon walking or from slight muscular effort.

Subjective sensations are prominent, such as paræsthesias or a feeling of formication in the trunk and limbs. Both the superficial and deep reflexes may be increased; rhythmic twitchings and tremor are occasionally noticed.

The prominent cardiac disturbances are palpitation and irregularity of the action of the heart, with occasional precordial pain. Associated with the cardiac disturbances or occurring independently, there may be vasomotor disorder, cold extremities, localized sweating and blushing, or abnormal dryness of the skin. The appetite is variable and anorexia is frequent, but the *nervous dyspepsia*, gastric and intestinal, is by far the most prominent digestive disorder. Gastric fermentation, probably due in part to deficiency of the digestive fluids, especially hydrochloric acid, causes distention of the stomach accompanied with discomfort and pain. Extending into the intestines, the fermentation gives rise to borborygmy and colicky pains, the latter of which may be severe enough to simulate genuine colic. The digestion is usually not impaired sufficiently to create disturbance of nutrition, but in severe cases it may even cause cachexia and anæmia. The intestines are usually constipated. Diarrhœas are apt to appear for short periods, and may be persistent for a considerable time.

In the sexual life there is more often a loss of sexual desire, but in a few cases a tendency to excessive indulgence, although at the same time patients complain of impotence.

In cases which resist treatment, the patients become chronic invalids of a most distressing type. They go the round of physicians, pass from one sanatorium to another, taking all kinds of drugs. Mentally they pass into a state of lethargy in which all thought centres about their own misery. All attempts at business are abandoned, and the cares of the household are renounced. They betake themselves to the seclusion of a charitable institution with its freedom from annoyances, or if they remain at home, demand the utmost consideration for every whim. They

have no thought for the maintenance of the family or appreciation of the burden which they create. The increasing demand for sympathy leads to prevarications and to various assumed contortions, in order to assure the physicians or friends that they are in a critical condition. The daily greeting from one patient was, "My God, doctor, I am dying! Just feel of my abdomen. Have you no compassion for a dying man?" A female patient remained in bed for years, and when received at the hospital from the hands of a tender-hearted mother, had not had her hair combed in two years, and one of her toe nails had grown to the length of five inches. It is this class of patients who eventually become habitués of morphin, cocain, chloral, antipyrin, and other drugs.

Course. — The onset of the disease is gradual. It may appear suddenly, following an acute disease, especially influenza. There is a great variation in the prominence of the symptoms. A daily improvement toward evening is noticeable, and upon demand they are able to pull themselves together for a special occasion; but the following day witnesses an exacerbation of the symptoms. The course is usually protracted and the convalescence gradual, sometimes extending over years. Patients with a strong neuropathic heredity rarely recover the former state of health.

Diagnosis. — It is of prime importance to exclude all organic disease of the internal organs. The diagnosis of neurasthenia should be reached by a process of exclusion, after a most thorough physical examination.

The psychoses which may be confounded with neurasthenia are dementia paralytica, dementia præcox, and melancholia of involution. The difficulties in *dementia paralytica* arise only in the first stages of the disease.

Signs of nervousness without definite cause in a man of healthy constitution appearing for the first time in middle life should at least arouse suspicion of dementia paralytica. In neurasthenia the memory defect varies from day to day, is easily corrected upon effort, and does not show the defective time element which is so characteristic of the memory in the paretic. Neurastheniacs complain of mental impairment, but are able to amend errors in writing and speech, while the apparent mental defect in the paretic is unrecognized, or, if recognized, its extent is not appreciated. The sensory disturbances of the neurastheniac are subjective, of the paretic, objective. The presence of the characteristic nervous disturbances of the paretic leaves no doubt: Argyl Robertson pupil, increased myotatic irritability, ataxia in speech and gait, tremor of the muscles about the mouth and of the tongue, and epileptiform or apoplectiform attacks.

The prodromal periods of the other psychoses, especially *dementia præcox* and *melancholia*, are hardly to be distinguished, especially where these psychoses follow some acute disease, or appear in neuropathic individuals who have succumbed in the struggle with more favorably endowed associates. The appearance of apathy without sufficient cause, and of delusions of reference or persecution without insight, indicates the more serious condition.

The prognosis depends upon the extent to which the exciting causes can be removed, the duration of the disease, and the neuropathic basis. Unless the patient can be removed from the exciting causes, the chances for permanent improvement are poor.

Treatment. — Where possible, it is the duty of the family physician to bear in mind prophylaxis. Individuals who are handicapped by a defective heritage must be

well guarded during their development, with due attention to moral and physical hygiene. Later, when it becomes necessary to enter actively into the severer duties of life, the limitation of mental application and physical exertion, together with the avoidance of worriment and anxiety, must be constantly kept in mind.

In the treatment of the disease after its development, the individuality of the physician is of prime importance; he must recognize and utilize his power of influence over the patient in addition to various therapeutical agencies. It requires confidence in order to inspire the patient and to lift him from his morbid anxiety and depression. Isolation with a changed routine of life demands immediate attention. In the lighter cases, a trip to the mountains or a sea voyage to relieve the asthenic condition, or where this is impracticable, removal from the customary surroundings into a quiet, restful, but attractive place, will accomplish the same result. Next to isolation, insomnia must be combated. Usually the change of the surroundings with different routine relieves this condition. In case this fails, one may use alternately the various modern hypnotics, sulphonal and trional, etc. But before resorting to these medicinal means, hydriatics should be thoroughly tried. Of these the most serviceable methods are the prolonged warm baths, ninety-eight to a hundred degrees for thirty or forty-five minutes, cold ablutions, the spray, the simple douche, and the dripping sheet. In the last method, which may be carried out at home, after a cold ablution, eighty-five to seventy-five degrees, the patient standing in warm water, or on a dry surface, with a cold towel about the head, a linen sheet, dipped into water seventy-five to fifty-five degrees, is wound dripping about the patient, the nurse at the same time applying friction

until a thorough reaction takes place. The douche, as carried out at a bath institution, is of great value. In the more severe cases, the secret of successful treatment lies in a well-regulated routine suited somewhat to the tastes of the individuals, but requiring of all a definite amount of sleep, nourishment, mental and physical exercise, alternated with rest and relaxation, together with baths and out-of-door life. All of this may be carried out under the supervision of a physician who is willing to spend time and thought in caring for the details. The relative amount of exercise and forced rest must vary in individual cases. The anæmic and debilitated who have been exhausted by long suffering or the prolonged care of invalids, together with anxiety and worryment, require forced rest for a few weeks with a full nutritious diet, massage and passive movements. Others need daily exercise, which must be purposeful and suited somewhat to the tastes. The diet, also, must depend upon the condition of the nutrition. Where indigestion or constipation exists, the usual means should be used to counteract these conditions, always giving preference to physical agencies. Electricity and massage are of value, but only secondary to the above methods. Sometimes local treatment is called for in correcting uterine troubles, errors of optical refraction, or in removing nasal obstructions.

INTOXICATION PSYCHOSES

As already stated, the term intoxication psychoses is here used in a narrow sense to include all psychoses arising from toxic substances taken into the body.

They are divided into acute and chronic intoxications, according to the length of the time during which the toxic substances have been ingested.

ACUTE INTOXICATIONS

The acute intoxications are characterized in common by a delirious state of short duration, with pronounced psychosensory disturbance, dreamy fantastic delusions, pleasurable emotional attitude, often with conditions of ecstasy, and without much motor excitement.

The number of toxic substances, including ptomaines, which might be mentioned here is large. The transitory character and the infrequency of the toxic deliria make them of little importance to the clinician. They are, however, of great scientific value to investigators, who are able to study pathologically and psychologically the effects of the different toxic substances. Some of these which are characterized by peculiar mental symptoms will be mentioned here. The mental state produced by chloroform is characterized by hallucinations of sight only. In santonin poisoning there are hallucinations of sight in which everything appears yellow; hasheesh delirium is characterized by disturbance of the taste and muscle senses.

Hasheesh and opium smoking produce a complacent feeling of well-being, and of a dreamy, pleasurable existence. The carbonic acid narcosis is characterized by its short duration and the presence of pronounced sexual hallucinations. In the toxic condition produced by atropin there is a severe disturbance of apprehension, with isolated hallucinations, marked confusion of thought, elated emotional attitude, and active motor excitement. The course is either fatal or the psychosis clears very quickly with no recollection of the events.

The duration of all these conditions is short, from a few hours to a few days at the most. The prognosis depends entirely upon the severity of the intoxication. In diagnosis one must rely in great measure upon the knowledge of the circumstances and upon the physical signs. The treatment is limited to the employment of means to rid the body of the toxic substance, and the application of special antidotes.

The psychosis produced by lead poisoning, *encephalopathia saturninia* is more frequent and differs from the above delirious states by its longer duration, characteristic nervous symptoms, and poorer prognosis. The physical symptoms usually precede the mental disturbance; that is, wrist drop, peroneal paralysis, tremor, pains in the limbs, and sometimes colic. The immediate prodromes are restlessness and headache. The onset of the delirium may be acute or subacute. There are many hallucinations of sight and hearing, great psychomotor disturbance, many delusions with great fear, and complete clouding of consciousness.

The speech is incoherent, and in the height of the delirium there are frequent reckless impulsive movements. There is complete insomnia, and very little nourishment

is taken. The active excitement is followed by a condition of stupor or coma, sometimes antedated by stupor with excitement.

Epileptiform convulsions may also appear, and amblyopia is frequent. The convalescence is gradual, extending over several weeks. Some cases terminate fatally in coma. While most of the patients recover, there are many who, upon regaining clear consciousness, present a degree of mental enfeeblement in which simple apathy is a prominent feature. A few present progressive muscular atrophy, simulating dementia paralytica. The whole duration of the psychosis in favorable cases is from a few weeks to three months.

CHRONIC INTOXICATION

Of the many toxic substances whose continued use leads to disturbances of the mind, those best known and of most clinical value are alcohol, morphin, and cocain. Almost all nations, according to anthropological data, have had a drug whose habitual use has been a source of danger to its people. It is a striking fact that these substances have always been used first for medical purposes, and later continued for their exhilarating and alleged supportive effect.

ALCOHOLISM

The acute intoxication of alcohol is described here rather than under the acute intoxications, because of its close association with chronic alcoholism.

Acute alcoholic intoxication produces at first a diminution of the power of apprehension and elaboration of external impressions, and an acceleration in the release of voluntary impulses. The perception of simple sensory impressions is difficult, sluggish, and uncertain. An

attempt to solve a simple problem shows a distinct diminution in intellectual power.

In speech one can discern that the association of ideas most closely related to the motor elements of speech is prominent, such as the use of compound words and rhymes. The release of motor impulses is so much accelerated that that finds expression most readily which is learned by heart. The choice between two movements is precipitous, frequently incorrect, and sometimes already executed before the proper direction is determined upon. Later, or following larger doses, the psychomotor activity is displaced by paralysis, the rapidity and extent of the paralysis depending both upon the amount taken and the susceptibility of the individual. The muscular strength, at first slightly increased, is soon much diminished.

Even small doses influence the capacity for good mental work. Thoughts are not easily gathered, rendering the solution of complicated problems very difficult. This increases with the amount taken. A thoroughly intoxicated man is unable to comprehend what is said to him or what goes on about him, cannot maintain his attention or direct the train of thought. He has no conception of the significance or the bearing of his actions. The internal association of the train of thought is very much disturbed, as indicated by the tendency to the repetition of phrases and the use of commonplace remarks, also in the fondness for quoting obscene rhymes and in the use of jargon. Finally apprehension may be so far lost that he becomes insensible and unconscious. The memory of the events of the intoxicated state is very meagre.

In the psychomotor field, at first, there is a light grade of over-activity, with the disappearance of the usual restraints which regulate the actions of our daily life. He

is active, gay, free and jolly, speaks and acts without restraint, and even becomes reckless. The ready release of motor impulses promotes the feeling of increased muscular strength. Later the motor excitation increases; the facial expression loses its character, each action is exaggerated; the voice is louder, and the smile broadens into laughter. He becomes profane, grumbles, and growls. He is hasty and passionate, and a single word or a trifling accident suffices to start a quarrel or to lead to an assault. Finally the excitation, as the disturbance of apprehension increases, is replaced by signs of paralysis, and there is a profound disturbance of speech, a staggering gait, and even complete motor paralysis.

The emotions at first give way to a feeling of well-being. There is a certain degree of exhilaration, and a freedom from care. He becomes light-hearted and happy. Later irritability appears. The higher moral feelings are lost. He is shameless, and with the increased sexual excitability, is often led to filthy excesses.

The duration of the intoxication depends much upon the individual. It usually disappears quite rapidly, although ill effects may be observed for twenty-four to thirty-six hours later; headache, lassitude, nausea, and anorexia. Fatigue predisposes to rapid appearance of paralytic signs, and even without the intervention of the period of excitation. Individuals who are apt to be sluggish and sleepy are apt also to be quarrelsome, aggressive, mischievous, and even cruel.

As the result of experimental investigations of acute intoxication in test animals, Nissl has demonstrated a profound change in the cortical neurones, seen in the fading and the irregular amalgamation of the Nissl granules, the diminution in size and irregularity of the nucleus, whose mem-

brane and nucleolus may finally disappear. Dehio has observed similar changes in Purkinje cells.

CHRONIC ALCOHOLISM

Chronic alcoholic intoxication is characterized by gradual and progressive mental deterioration, with many physical symptoms, depending pathologically upon a chronic degenerative process in the central nervous system.

Etiology. — Defective heredity is the most prominent etiological factor, and is manifested by a diminished power of resistance. Some observers have reported as high as eighty per cent. of cases with defective heredity. The extensive use of alcoholic drinks by many classes of people and the laxness of public sentiment in regard to it should also be considered as an etiological factor.

Pathological Anatomy. — The pathological lesions found in chronic alcoholism are equally prominent in the central nervous system and in the internal organs. The principal lesion is arterio-sclerosis. In the brain, there is regularly more or less chronic leptomeningitis and pachymeningitis with or without hæmatoma. The cerebrum is below normal in weight, its convolutions more or less shrunken, and its ventricles dilated, the ependyma of which in rare instances is granular.

The larger vessels at the base and in the fissures present arterio-sclerotic patches or atheroma, but the most characteristic lesion is found in the endarteritis, mostly localized, of the small terminal arteries of the cortex, and other parts of the brain. The cortical neurones present what Nissl has called the chronic change, a gradual sclerosis.

Nissl, in his experimental research with chronic alcoholism, in test animals, found a moderate thickening of the

pia, especially at the base, destruction of many of the cortical neurones, with an increase of neuroglia. The usual alterations in the other organs are chronic gastritis, cirrhosis of the liver, chronic nephritis, fatty infiltration of the myocardium, and chronic endocarditis with greater or less degree of general arterio-sclerosis.

Symptomatology. — There is a gradual and progressive enfeeblement of the intellectual faculties, in which the impairment of memory and of the moral sense is most prominent. There also develops a failure of judgment and diminution in the capacity for employment. The intellectual capacity of the man is first to suffer. The power of mental application gradually fails, it becomes difficult to maintain the attention, and the sense of fatigue increases. New and unaccustomed work requires unusual application and is accomplished only with difficulty. Patients prefer to continue in the same old ruts, and are indifferent in applying themselves to any mental work. Consequently intellectual progress not only ceases, but retrogrades, showing an increasing lack in judgment and a poverty of ideas, enhanced by a gradual failure of memory. Finally there is inability to acquire anything new, important facts are forgotten, and the past is recalled only as a somewhat confused and distorted picture. This condition offers a fertile soil for the development of more or less pronounced delusions (alcoholic paranoia).

The *moral deterioration* is a prominent and characteristic symptom. There is a profound change in moral character, and the patient soon loses sight of the higher ideals of life and the sense of honor. This is especially noticeable in their estimation of their own alcoholic habits. Their depravity is disregarded with a nonchalance, or it is claimed that the liquor, taken for their physical benefit,

does them no harm. When reprimanded for continued inebriety, they accuse a friend of having given them the liquor, or claim that they are driven to drink by their wives. A faithful promise to abstain from further use of alcohol may be volunteered by an habitué; but when an hour or a day later he is encountered coming from a saloon, he shows no feeling of shame.

Some claim that their work needs stimulation; others take only as much as can be regarded as a food. It is of interest to note the variety of conflicting excuses offered by mechanics for the necessity of taking liquor: the cook, the fireman, and the iron moulder require it because of the great heat; while the night watchman, the truckman, and the iceman need it to drive off the cold. Many are driven to drink by unfortunate circumstances at home; the death of a relative, a sick child, and an ugly wife are frequent incentives.

The patients lose all affection for their families, become indifferent to the tears of their children, have little interest in their welfare, disregard the real infidelity of their wives, at the same time developing a certain exaggerated feeling of self-importance, noticeable especially in conversation. They are unable to take matters seriously, and display an unnatural sense of humor (*drunkard's humor*).

There is a corresponding increase of mental irritability, which is more evident during intoxication. Patients are quarrelsome, engage in strife and abuse on small provocation, misuse their children, and are destructive of clothing and furniture. Their complete and abject submission when opposed by a superior force or when incarcerated is in marked contrast to their behavior at home. Their inoffensive behavior and attitude of humiliation before others often excites sympathy from the inexperienced.

They become entirely unstable, cannot remain at home, visit from saloon to saloon, tramp from one city to another, and engage in their usual occupation only for a few days or hours at a time, offering the excuse that they are physically unfit for continued labor. They leave the support of the family to the wife and children, whom they browbeat for enough money to keep them in liquor. Others degrade themselves by pawning clothing or furniture, or even steal in order to satisfy their appetite.

Physically.—The most prominent physical symptoms are fine tremor, noticed first in the finer movements and later becoming general; muscular weakness with atrophy; uncertainty in gait; defective speech, sometimes thick, sometimes slurring, with occasional aphasic symptoms; frequent headaches and sometimes vertigo. The tendon reflexes are often increased, rarely lost. In the sensory field there are frequently areas of hyperæsthesia and anæsthesia. Epileptic attacks¹ appear in from one to thirty five per cent. of cases, varying according to the observations of different investigators. Wildermuth has recorded them in only one and five-tenths per cent. They are more frequent in persons who have been addicted to distilled liquors. Magnan, Wartman, and others believe that it is to be distinguished from true epilepsy, regarding it simply as epileptoid, similar to the convulsions occurring in uremia and dementia paralytica. These epileptic attacks are rarely permanent, usually disappearing with the withdrawal of alcohol.

Prognosis.—The chances of recovery depend upon the extent of mental deterioration and the character of the treatment. If the patients already show moral deterioration, prolonged treatment is apt to be of little avail; each

¹ Bratz, Alcohol u. Epilepsie. Allg. Zeitschr. f. Psy., S. 234, 1899.

time they relapse into their former habits, becoming at last mental and physical wrecks. Cases when taken early and submitted to an extended treatment have a fair prospect of complete recovery. In many reputable inebriate institutions from one-fourth to one-third of their cases recover permanently.

Diagnosis. — The recognition of chronic alcoholism presents few difficulties in view of the history, the typical facies, and the physical symptoms, the latter being at times made more evident by the presence of neuritic symptoms.

Treatment. — The successful treatment of chronic alcoholism demands complete abstinence from alcohol in every form. A few patients are capable of carrying out this injunction successfully by themselves, but the vast majority, and especially those whose occupation brings them into bad associations, require the treatment afforded by a special institution for alcoholics. The alcohol can be suddenly withdrawn except in a few cases where there is a disturbance of the heart. The insomnia, anorexia, and occasional hallucinations which arise in consequence of withdrawal quickly disappear, and in a few days improvement begins, which progresses gradually. Severe cases require a hospital residence of nine to twelve months, or even longer. An index of the power of resistance may be found in their insight into their own condition, and willingness to prolong their hospital residence. Hypnotic suggestion has been an efficient means in the hands of some physicians in bringing about a more rapid recovery.

The alcoholic psychoses which develop upon the basis of chronic alcoholism are: *delirium tremens*, *alcoholic delusional insanity*, *alcoholic paranoia* (Eifersuchwahn) and *alcoholic pseudopareses*.

DELIRIUM TREMENS

DELIRIUM TREMENS is characterized by the sudden development of *fantastic hallucinations of sight and hearing, indefinite and changing delusions, mostly of fear and apprehension, often of a religious nature, with clouding of consciousness, rapid course and good prognosis.*

Etiology.—There is an undoubted relationship between delirium tremens and chronic alcoholism, especially in individuals addicted to distilled liquors. The fact that the symptoms of delirium tremens in no way resemble those of acute alcoholic intoxication interferes with the belief that it is due alone to alcoholic intoxication. Further, the amount of alcohol ingested immediately before the attack seems to bear no definite relation to it, as, in some cases, the patients have had no alcohol for weeks; others develop the condition only upon its withdrawal, and in some it appears in spite of continued drinking.

The most important factor is a state of defective nutrition, which usually exists for days, and even weeks, before the outbreak. In this gastritis plays an important rôle; the patients take little or no food for days, suffering from anorexia, vomiting, and gastric pains.

In view of these facts it is now the prevailing belief that it arises as the result of an intoxication, produced by a condition of faulty assimilation and metabolism in organs already made susceptible by the long-continued use of alcohol. Other exciting causes are shock, injury, and acute diseases, especially pneumonia.

Pathological Anatomy.—There is usually pronounced venous stasis, and edema of the brain. Bonhoeffer¹ claims that, while there is no nervous lesion characteristic of delirium tremens, there is present in severe cases an extensive degeneration of the nerve fibres in the corona radialis, especially beneath the central convolutions, and to a less extent in the anterior and lateral nerve tracts of the cord. There is little or no alteration in the parietal and Broca convolutions. The lesions characteristic of chronic alcoholism are also found.

The cell alteration is of an intense degree corresponding to the severity of the clinical symptoms. He calls attention to the dissolution of the chromophilic granules, producing a finely granular appearance, to the alteration of the staining qualities, and to the change in the contour of the cell body. There is an accumulation of glia cells about the nerve cells. The protoplasmic processes are intensely stained for some distance from the body. There are degenerative changes in the pons and medulla, confined mostly to the posterior columns of the cord and their nuclei, seeming to indicate that the degenerative changes in the cerebellum are associated with the centripetal fibres. The manifold changes in the same brain, and the various transition forms, make it impossible to point to any change as characteristic.

Nissl has called attention to certain cell changes which remind him of the acute changes; that is, staining of the achromatic portions, especially in the neuraxones, vacuolation of the cell substance, and a moderate swelling. There are often found small hemorrhagic points in the pons about the nuclei of the ocular muscles. Besides the acute changes, the cortical cells usually give evidence of

¹ Bonhoeffer, *Monatschr. f. Psy. u. Neur.*, Bd. V, S. 265.

chronic alterations, characteristic of chronic alcoholism, also an increase of glia cells and chronic vascular changes. In the internal organs there is found fatty degeneration and fibroid myocarditis of the heart, cirrhosis of the liver, and acute and chronic alterations in the kidneys.

Symptomatology.—The onset of the psychosis is rather rapid, following a few days of insomnia and uneasiness, a changed disposition, unusual timidity, and perhaps indefinite sensory disturbance, indicative of sensory excitement, such as hyperæsthesia, creeping sensations, and light specks before the eyes. There may have been a few indefinite hallucinations at night.

The most prominent symptom is numerous *hallucinations* of all the senses, especially of sight and hearing. These appear in connection with clouding of consciousness, disorientation, more or less psychomotor excitement, and certain motor and sensory nervous symptoms.

The hallucinations and delusions, which appear first during the night, become more prominent, and annoy the patients constantly. They are perceived with great clearness, and, with the terrifying content, produce a marked alteration in the emotions. The patients see all sorts of animals, large and small, moving about them; rats scamper about the floor, serpents crawl over the bedding, insects cover their food, birds of prey hover about in the air. Fantastic forms are seen, mermaids, satyrs, and huge quadrupeds. Crowds press upon them, troops file by. The devil and his imps are omnipresent, peering in at the windows or crawling from under the bed. They hear all sorts of noises: the roaring of beasts, ringing of bells, firing of cannons, crying of distressed children. They are taunted by passing crowds, are threatened with death, are cursed, called traitors, thieves, and mur-

derers. Paræsthesias of the skin lead to the ideas, that ants are crawling over them, that bullets have entered the body, and even the absence of wounds does not deter them from exposing limbs which have been shot full of missiles. Hot irons are being applied to their backs, and dust is thrown in their faces. They can detect the odor of gas, sulphur fumes are being forced through the keyhole. Real objects about the room assume life, the tufts on the bedding become creeping things, and the bedposts demon guards. The content of the hallucinations and delusions is not always of a terrifying nature. Sometimes angels are seen, beautiful music is heard. God appears to them, announcing that they are Christs, and empowered to cast out devils; they are commanded to go to confession and to proclaim the gospel message; they are in beautiful surroundings, are richly dressed, in palatial quarters, attended by lovely maidens. Sometimes the scenes are of a lascivious character. Occasionally there is a mixture of the fearful and the beautiful, but more often, when there is a change of the emotions, the former is gradually replaced by the latter, as the course of the disease progresses. The hallucinations and delusions, in a few cases, and especially after the height of the disease has been passed, are nothing more than a passing show for the patients; they gaze at the hideous forms and listen to the various noises quite unconcerned.

The results of various experiments seem to indicate that the hallucinations and illusions originate in disturbances of the central processes. Hallucinations seen through a colored glass are not similarly colored. Also the hallucinations can be made to appear by directing the patient's attention to their sensory fields, and by asking them what they see and hear.

The various hallucinations may enter into the picture of an occupation delirium, when the patient is busy gathering up the gold lying about him, driving a flock of sheep, leading an orchestra, or addressing a multitude. The perception, according to Bonhoeffer, remains normal; the temperature, pain, muscular sense, and the acuity of sight and hearing being intact. The field of vision is occasionally restricted, and the tactile sensibility somewhat sharpened. The sense of equilibrium and the perception of space is a little uncertain, the patients complaining that the floor is shrinking up or that the walls are coming together.

Disturbances of *apprehension* are prominent. There is defective interpretation of the impressions excited in the various sensory fields, with the result that the patients misinterpret noises, do not recognize pictures, and are unable to obtain any sharp and clear impressions. The disturbance becomes more apparent when the patients attempt to read. Instead of correct sentences, there is a senseless series of words and sound associations, which is especially noticeable when the type is small and indistinct. Sometimes there is no relation between the reading and the subject matter. This same defect is sometimes due to aphasic disturbances. The *attention* of the patients is held only with great difficulty. It is usually impossible to gain their attention. Forcible language may hold them for a short time, but they quickly relapse. The patients note only those objects which especially attract them. This may explain why their attention is not attracted to severe injuries, and how they can use broken limbs recklessly.

There is always a moderate clouding of *consciousness*. The surroundings are not correctly comprehended. The ideas which are excited by occurrences in their immediate

surroundings are confused and contradictory. Profound clouding of consciousness is found only in severe cases. The surroundings are mistaken for the bar-room, the church for the prison, and strangers are greeted as old friends. They have a wrong conception of the time of week, month, and sometimes, also, of the year; usually they over-estimate the duration of their illness.

The *memory* for remote events is well retained. The patients recall correctly where they live and facts concerning their families and occupation, and the length of time they may have resided in different places. But the memory for recent events is very defective, especially for the time of their occurrence. Occasionally they present marked falsifications of memory.

The *train of thought* is coherent, yet the patients show a distractibility. During a conversation trifling incidents lead the train of thought off into various directions. They experience difficulty in collecting their thoughts, are unable to recognize contradictions, and fail in trying to solve problems which require thought.

In *emotional attitude* the patients are anxious and fearful or happy and cheerful, depending upon the character of the hallucinations or illusions. They may change rapidly from intense fear to jolly laughter, and even indulge in witty remarks. In *actions* they are more or less restless and talkative. They are seldom able to engage in work, though occasionally a patient continues at his occupation until the disease is well established. Usually they take an active part in their numerous hallucinations. They plug the ears to keep out disagreeable noises, crawl under the bed to elude persecutors, escape from the window to get away from the sulphur vapors and the enemies waiting outside the door; they answer the imaginary voices,

run to the station for protection, or amuse themselves with their beautiful surroundings and join in the happy company of imaginary revellers. Sometimes they are assertive and aggressive, demanding attention or carrying out divine commands. When in fear they often commit assaults.

Many chronic alcoholics develop what in their own parlance is called a "touch of the horrors," which in reality is an *abortive form of delirium tremens*.¹ Some of these cases come under the care of the family physician, but the majority of them go without medical attendance. The symptoms are those of the prodromal stage of delirium tremens. During a debauch or following abstinence or mental shock, there develops some paræsthesia, a vague feeling of apprehension, as if some one were constantly behind the patients, the slightest noise causing them to be startled. While in this state they have single hallucinations of sight and hearing. One patient saw for a moment a number of rats scampering across the floor, others were attracted by unnatural voices. It very frequently happens at night that some object appears at the window for a second and is gone. The patients are perfectly conscious, and appreciate their condition. The physical signs of delirium tremens are usually present. It is of short duration, rarely lasting over a few hours or days.

Physically, besides the various sensory disturbances which may form the basis for illusions and hallucinations, there is often great muscular weakness. There is ataxia and pronounced tremor of the tongue and fingers, and sometimes of the extremities and eyelids. Speech is often ataxic and paraphasic, with malposition of words and syllables, and in the severest cases, may be slurring and unin-

¹ Berkley, Mental Diseases.

telligible. Occasionally in the severe cases muscular spasms are noticed. Epileptiform seizures may occur, appearing shortly before the attack, sometimes accompanied by transitory paralytic symptoms. The tendon reflexes are exaggerated. Insomnia is marked from the first, and persists unless the patients become stuporous. The condition of nutrition suffers, because of the small amount of nourishment ingested, which is due in part to the delusions of poisoning, and in part to the gastritis. There is apt to be a slight rise of temperature during the first few days, rarely reaching one hundred degrees. The pulse rate is low as well as the respiration, and occasionally there is profuse perspiration.

In a large percentage of cases the urine contains albumen and casts, which clears up with the psychosis; albumoses are rarely found; nucleo-albumens are often present. Esholz finds in the blood a relative leucocytosis, with a diminution of the eosinophiles at the height of the psychosis.

Course. — The duration of the delirium varies from a few days to two weeks, rarely extending beyond three weeks. The improvement comes with sleep. The hallucinations usually fade away slowly, though sometimes they disappear within a night. With the improvement of sleep the physical symptoms disappear gradually. The memory of the events of the psychosis depends upon the severity of the disturbance of consciousness. In the severe cases nothing may be recalled.

Not all cases show the rapid clearing up of symptoms with the improvement of sleep. A few cases suffer relapses after a few days of clear consciousness have intervened. Others show a complete alteration in the character of the psychosis after the hallucinations and

illusions have disappeared, some going over into the characteristic polyneuritis psychosis, or into the alcoholic delusional form. A certain number of cases pass into a condition of mental deterioration. Here the patients, after the hallucinations, the disturbance of consciousness, and restlessness, have disappeared, still continue somewhat reserved and suspicious. Occasionally a few hallucinations, especially of hearing, remain. Likewise changeable delusions may persist, as, that they are worked upon by electricity. Occasionally expansive delusions are expressed for a short time. The memory is well retained, but evidences of mental weakness are noticed in lack of judgment and mental apathy. In emotional attitude the patients present a mixture of anxiety and humor. They are ordinarily good-humored and tractable, showing some weakness of will power, but at the same time easily excited to anger. A marked characteristic is the variation in the mood. At times they are amiable and industrious, at the same time recognizing that they are not well, while at others they are irritable, complaining, threatening, and express hallucinations.

Diagnosis. — The diagnosis of the disease is not difficult if the previous history is known. *Fever delirium* and the *dreamy-like conditions of epilepsy* may be confused with delirium tremens. In the former there is a more marked clouding of consciousness, and especially in the epileptic condition, confused delusions of a religious character stand in contrast to the moderate restlessness without impulsiveness, the active hallucinations, and the muscular tremor of the alcoholic.

The *delirium of dementia paralytica* is differentiated from the alcoholic delirium by the previous history of change of character, evidences of failure of memory and

judgment, physical signs, and the more profound clouding of consciousness, with a change of personality. The conditions of mental weakness following a few cases of delirium tremens may be mistaken for *paranoia*, but in them there is a lack of progressive systematization of the delusions, which have but little bearing upon their actions; furthermore there is a partial insight.

The **prognosis** is usually favorable. In the unfavorable cases (three to five per cent.), the symptoms of mental paralysis appear, the patients becoming unconscious, their movements uncertain and weak, and the content of speech entirely incoherent.

Treatment. — It is of prime importance to first establish the proper nutrition. The condition of gastritis may demand lavage with saline solutions. Small quantities of liquid nourishment, frequently repeated must be given from the onset; if necessary in order to accomplish this, feeding by tube should be resorted to. Insomnia and restlessness must be combated by the administration of paraldehyde, sulphonal, or trional. Chloral in repeated doses until sleep is procured is successfully employed by some, but very many question its use, especially where there is any cardiac trouble. Krafft-Ebing recommends repeated injections of methylal, one and one-half grains every two or three hours until sleep is procured. Where there are severe complications or fever, hypodermic injections of three-fourths grain of aqueous extract of opium may be employed; but here also its use must be avoided where there is cardiac weakness, and furthermore, this drug must never be suddenly withdrawn. The alcohol can be safely withdrawn at once, and this procedure, except where there is a tendency to heart weakness, when either camphor, strong coffee, or strychnin should be substituted, is advisable. With the

taking of nourishment and the appearance of sleep, the condition improves rather rapidly. Constant watching is absolutely necessary to prevent the patient from leaving the bed and injuring himself or others. During severe illness in chronic alcoholism, one should always guard against the occurrence of the delirium by maintaining nourishment and securing sleep.

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ALCOHOLIC DELUSIONAL INSANITY

THIS psychosis is characterized by the *sudden development of coherent delusions of persecution, based upon hallucinations of hearing with retention of clear consciousness.*

Etiology. — The same etiological factors apply to this alcoholic psychosis as to delirium tremens. Why one case should develop into delirium tremens and another into alcoholic delusional insanity is yet unknown.

Symptomatology. — Occasionally, a few prodromal symptoms, such as indisposition, headache, dizziness, insomnia, and irritability, are present before the acute onset. The patients at first are disturbed only at night by indefinite noises, shouting voices, crying, ringing bells, and firing of guns. Later the sounds become more definite, as, the call of their own names or separate curse words, and finally definite sentences, usually in reference to themselves. These remarks appear to come from the next room, or from workmen close by. They may be indistinct or clear, and occasionally are heard with only one ear. Very often the voices are recognized as those of a chum, a fellow-workman, or a well-known policeman, but rarely as those of the immediate family. The remarks are usually imprecations and references to misdeeds of their past life; they are called murderers, liars, thieves, have betrayed their native country, or have shot the President. They hear that they are to be electrocuted, that the wife is unfaithful, that the children have been drowned. They are laughed at because of their anxiety. Sometimes all

of this is heard through a telephone. At times they are compelled to listen to their own indictment for murder or their death sentence. The content of these hallucinations is always of a depreciatory nature, and to it all they are unwilling listeners. Besides these numerous hallucinations of hearing, there are a few hallucinations of sight, especially at night. Strange and threatening forms appear before them, some crawling from under the bed, others creeping on the wall; brilliant specks come across the field of vision and they may even see double. At times the food has a peculiar taste, exciting suspicion.

The patients seem to be the centre of attraction; every one about them watches and threatens them. Their every thought and action is known and commented upon. Passers on the street jeer at them. Neighbors shoot through the fence at them, detectives in citizen's clothes follow them wherever they go. They are distrustful of their surroundings, constantly on the alert for impending arrest, or they go into hiding, refusing to leave their home. These patients argue that they are condemned to die, and show considerable emotion. The night nurse is regarded as a hangman, and his entrance into the room is resisted to their utmost strength. Fellow-patients refuse to speak to them because they are implicated in the seduction of their wives. Sometimes they refuse to answer questions or associate with any one until brought to the court room for the supposed trial. At times they find consolation in prayer and in reading the Bible.

The *consciousness* is unclouded. The patients are oriented, their speech is coherent, and they are able to make an accurate statement of their symptoms. They rarely possess clear insight, but may realize that they are different, and frequently accuse their persecutors of drugging

them or making them crazy. Others claim that they are "nervous."

The *emotional attitude* is usually depressed, but at times, and especially later in the course of the disease, there is a mixture of anxiety and cheerfulness when they relate their frightful experiences with indifference, or perhaps laugh at the absurdity of their attracting so much attention. At the onset they are anxious and fearful. Many apply for protection at the police station. They are apt to be seclusive, avoiding attention. A cigar maker abandoned his position and kept to his room many days for fear of detectives who were after him. When not constantly in fear, they are quiet, reserved, and in replying to questions are monosyllabic. Their actions are well directed, and they are often able to help in ward or home duties. It is not rare for them to continue at their employment for several days after the outset of the psychosis.

Physically, sleep is regularly disturbed by hallucinations and anxiety. The appetite fails and there is a loss of weight. The reflexes are occasionally exaggerated and tremor of the tongue and hands is often present.

Course.—The course of the psychosis may be either acute or subacute. When acute, the duration varies from two to three weeks, with rapid disappearance of the symptoms, sometimes during a night. In the subacute form the symptoms may persist from one to eight months, with numerous remissions, disappearing gradually. Hallucinations other than those of hearing, and the appearance of expansive delusions, indicate a prolonged course.

The **diagnosis** of the disease depends upon the alcoholic history, the acute onset, and the prominence of hallucinations of hearing, upon which are based coherent delusions of persecution, without clouding of consciousness. Cases

of *dementia præcox* and *dementia paralytica* may present similarities, but are differentiated by the more sudden onset of the alcoholic psychosis, the lack of uniformity in the emotional attitude, seen in the mixture of anxiety and cheerfulness, and the great predominance of hallucinations of hearing without disturbance of consciousness. The presence of mannerisms, constrained postures, definite changes in the emotional attitude from depression to cheerfulness, following the content of the delusions and the clouding of consciousness, would indicate *dementia præcox*.

Prognosis. — The outcome is usually favorable, only a few cases failing to recover. These present the picture of a light grade of deterioration, similar to that following some cases of delirium tremens; a few maintain expansive and persecutory ideas.

The method of **treatment** is similar to that indicated in delirium tremens.

ALCOHOLIC PARANOIA

A few cases of chronic alcoholism gradually develop delusions of jealousy (*Eifersuchwahn*), independently of ideas of persecution, which are persistently adhered to and expanded with poor attempts at systematization.

The estrangement naturally arising between man and wife as the result of chronic indulgence in alcohol and its necessary consequences, is the nucleus about which delusions of jealousy form. The patients believe that the reason for this change of affection lies in the fondness of the wife for other men, or of the husband for other women. Added to this, Krafft-Ebing lays considerable stress upon the failing sexual powers of the alcoholic. Iscovescu¹

¹ Iscovescu, These, Paris, 1898.

found the delusions of jealousy three times more prevalent in females than in males, which he explains by the fact that women are more emotional. Insignificant occurrences are regarded as important evidence of this infidelity: the assistance of some one in carrying a bundle, the fondness of a friend for their children, the voluntary implication of a neighbor in a family strife. The frequent clanging of a car bell means that the motorman is a correspondent. A side glance from a passer on the street, the arrival of an unusual letter, and even association with another man's wife, are held as sufficient proof of the suspected misbehavior. Furthermore, the home and children are neglected. They have seen the wife enter the apartments of a neighbor, and from noises which they have heard are sure that she was guilty of infidelity.

Occasionally, peculiar noises are heard about the house, a creak of the door or low talking, which are supposed to be made by the lover. There may be a peculiar odor in the house, or an odd taste in the food, which leads them to believe that an effort is being made by the wife to poison them. This incites them to nail down the windows and to fasten the door in order to keep out intruders. The saloon keeper is implicated, if he refuses to give them credit for liquor, or the coachman if he happens to be amiss in any of his duties. The reasoning in these delusions is very weak, illogical, and full of absurdities.

Their delusions are not built out, but remain confined within narrow limits. The patients, however, state them coherently, and oftentimes display considerable emotion, and indeed, in this way they frequently convince chance acquaintances of the great injustice done. Associated with these delusions of infidelity there may be delusions of poisoning.

There is no clouding of consciousness. In *actions* the patients usually exhibit marked weakness; they bemoan their misfortunes while submitting to the injustice. At times the actions are entirely out of accord with their delusions, and this is especially true in cases of long duration. A man may live peaceably with his wife whom he accuses of committing adultery night after night in his presence. Only rarely do they take means to chastise the wife or assault the supposed lover. One patient in despair drowned himself. Sometimes they are very irritable, and in fits of anger may be both aggressive and destructive.

The *course* of the disease is usually progressive. The delusions seldom disappear permanently, though abstinence from alcohol often produces improvement, especially in conjunction with confinement in an institution. When removed from home they are not annoyed as much by their delusions, and are able to live very comfortably. The apparent improvement leads to the belief that they are suitable for release, but the return to home surroundings, with the opportunity to secure alcohol, soon leads to recurrence of delusions. This psychosis is differentiated from paranoia by the lack of system in the delusions and by the symptoms of chronic alcoholism.

The *treatment* of these cases is limited to abstinence from alcohol, and confinement in an institution to prevent aggressive attacks and suicide.

ALCOHOLIC PSEUDOPARESIS

There may develop in chronic alcoholism a condition very similar to dementia paralytica; indeed, the similarity is so pronounced that the diagnosis may remain in doubt for a long time. It is of gradual onset, with the characteristic alcoholic hallucinations and delusions of persecu-

tion and infidelity, together with the characteristic failure of memory and judgment, expansive delusions, and mental stupidity of the paretic. Physically, there are the disturbances of speech, muscular tremor, ataxia, occasional epileptiform attacks, sensory disturbances, and exaggeration or loss of tendon reflexes.

The *course* of the disease is protracted, but not progressive. The more marked symptoms disappear in the course of a few months, or even years, leaving the patient in a condition of mild dementia, with perhaps a few expansive or depressive delusions of a paranoid type. A few patients recover so as to return to their homes and business.

The *diagnosis* depends in great part upon the course, which in dementia paralytica is progressive, while in alcoholic paresis the symptoms remain at a standstill. Furthermore, real muscular weakness is more marked than in paresis, and the tremor more general. The difficulty of speech in the alcoholic is due to tremor, and does not include elision and omission of syllables. Also headache, hallucinations, and anæsthesia are more marked in alcoholism. In alcoholics the delusions are of fear, persecution, and infidelity, with more or less marked emotional display, while in paresis, if similar delusions exist they are less sustained, coherent, logical, and more easily diverted. The paretic regards his woes more philosophically, showing contentment and indifference. It must be borne in mind that typical dementia paralytica sometimes develops in the course of chronic alcoholism.

The pathological findings in alcoholic paresis are, according to Krafft-Ebing, based upon one of his own cases similar to those of dementia paralytica, except for the absence of the granulations of the ventricles.

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MORPHINISM

THE extensive use and abuse of morphin for its alluring effects place it only second to alcohol in the production of mental and physical wrecks.

Etiology. — The intolerance of pain with people of this age, together with the freedom of the physicians in dispensing analgesics, accounts in part for the extensive use of this drug. Being an expensive drug, its victims are limited to the better classes. Considerably over one-half of the patients are those who are best acquainted with its ill effects — physicians, dentists, and professional nurses. At least one-half of these patients are men. On the Continent it is claimed that seventy-five per cent. are men.

An important etiological factor is the defective constitutional basis, evidences of which in very many cases are earlier manifested by various neuroses, as hysteria. Individuals free from this hereditary taint usually succumb to the drug after its continued employment in persistent painful affections, as neuralgia, sciatica, rheumatism, headache, dysmenorrhœa, and different forms of colic. The pleasurable feeling and the mental stimulus which supplement the analgesic effects are here the cause of its continuance. The majority of cases develop between the ages of twenty-five to forty years.

Pathological Anatomy. — In animals to which morphin had been administered for a prolonged period, Nissl has demonstrated a shrinkage of cortical neurones with an increase of the neuroglia.

Symptomatology. — *Acute Morphin Intoxication.* — The physiological action of morphin is to first produce an acceleration and excitation of the process of comprehension and a psychomotor retardation, which later passes into a dreamy state, with changing fantastic hallucinations and an intense weariness in the psychomotor functions. Then ensues a quiet, pleasurable feeling, which acts as one of the strongest enticements for the habitu  . For him it also produces a necessary stimulus for mental work, which cannot be accomplished by the exercise of the will power alone. There usually develops a metallic taste in the mouth, and sometimes rumbling in the bowels. Fortunately the drug fails to produce these pleasurable effects for all, owing to idiosyncrasies. Many after its exhibition suffer from a disagreeable fulness in the head, general feeling of discomfort, nausea, and colicky pains. Following the intoxication there is apt to be headache, profuse perspiration, and diminution in all of the secretions of the body.

Chronic Morphin Intoxication. — In the prolonged use of morphin the effects of acute intoxication disappear, and the individual obtains only the exhilarating and the quieting effects, which aid in endurance of annoyance incident to his work or his home life. The beneficial effects of this drug diminish with usage, and soon necessitate increased dosage, which may, in time, reach from thirty to fifty grains daily. The frequency of the doses must also be increased, which soon compels the physician to intrust the administration of the drug to the patient.

The character of the symptoms and the time of their appearance depend mostly upon the individual constitution and its powers of resistance. Some continue addicted to morphin throughout life without pronounced ill effect ;

others succumb in the course of a few months. In these the memory weakens, and the capacity for mental application diminishes. Difficult and exhausting work becomes impossible without its administration. Consequently the patients are either in a condition of exhilaration or stupidity or nervous irritability, none of which are compatible with mental work.

Emotionally, these patients exhibit many variations: they are sometimes dejected, irritable, cross, hypochondriacal; sometimes confidential, over nice, with pronounced affectation; and occasionally anxious, especially at night. Morally, there is a pronounced change of character, noticeable especially in reference to their irresistible habit. They willingly submit to all sorts of depraved means in order to secure the drug. Finally all idea of personal responsibility vanishes. The home and the business suffer alike, and they fall into a state of apathy and indolence, with an absence of will power and energy. They are careless about the dress and the personal appearance. In *actions* they are apt to be sleepy during the day, and active and restless at night, reading, busying themselves about foolish trifles, and talking incessantly. They are also disagreeable, faultfinding, and obstinate to the extreme. Very many of them become addicted to alcohol, and other drug habits.

Physically, the sleep is much disturbed. The patients lie awake for hours, their minds busied with all sorts of fantastic ideas, sometimes accompanied by genuine hallucinations of sight. Disturbances of sensibility are usually present, such as paræsthesias and hyperæsthesias, especially about the heart, the intestines, and the bladder. There is usually an increase of the tendon reflexes. The movements are uncertain, tremulous, and sometimes ataxic.

Occasionally there is difficulty in speech, also paresis of eye muscles (double vision and defective accommodation). The general nutrition suffers, and there is loss of weight. The skin is flabby and dry, due in part to the absence of normal secretions. The appetite, especially for meat, fails, though sometimes there is a ravenous appetite. Dryness of the mouth creates unusual thirst. In the circulatory system there is noticed palpitation, and slow, irregular pulse. The ringing in the ears, numbness, vertigo, and syncope, as well as the profuse perspiration and shivering, are attributable to vasomotor disturbances. The lack of sexual desires and impotence are prominent symptoms; in women there is amenorrhœa and sterility. The ensemble of these symptoms creates the picture of premature senility.

Abstinence Symptoms.—The abrupt withdrawal of morphin in individuals who are addicted to large doses produces in the course of a few hours a characteristic train of symptoms called abstinence symptoms. These, according to Marme, are due to the action of oxydimorphin. The withdrawal in milder cases, however, is always attended with more or less disturbance. The patients become tremulous and uneasy, experience a tickling sensation in the nose and begin to sneeze; feel oppressed, complain of paræsthesias of different parts of the body, and are sleepless. The administration of hypnotics, especially chloral, at this time, only increases the excitement and aids in bringing about a delirious condition with hallucinations and dreamy confusion. In spite of precaution, however, a condition very similar to delirium tremens may appear. This condition lasts but a few hours, or at most a few days. Occasionally there appears a condition of dazedness, with hallucinations and convulsive movements. *Physically*

the patients display involuntary movements, twitchings of the limbs, spasm of the diaphragm, paresis of the muscles of accommodation, tenesmus, paleness and flushing, vomiting, palpitation of the heart, fainting and collapse with heart failure, which is sometimes fatal. The secretion of saliva and perspiration, which during the ingestion of morphin has been diminished, now becomes excessive, and there is colliquative diarrhœa. Albumen is usually present in the urine. The duration and intensity of the symptoms depend upon the constitution of the patient, the duration of the habit, and the size of the habitual dose. The symptoms disappear gradually, except in the lighter cases, where they may vanish rapidly after a prolonged sleep. In the course of a few days, perhaps weeks, the patients begin to sleep and develop an appetite, but from this point convalescence progresses very slowly.

Course. — The rapidity with which the symptoms of chronic morphinism develop varies with the power of resistance of the individual and the quantity of morphin ingested; in some cases it requires a few months, in others several years. The duration also varies; some die within a year of inanition, heart failure, or in collapse, while others live for many years in spite of large and increasing doses.

Diagnosis. — The disease may be recognized by the varying emotional attitude; periods of mental freshness and unusual energy with a feeling of well-being, alternating with great weariness, stupidity, dejection, and irritability, and furthermore by the physical signs: the loss of sexual power, anorexia, myosis, and general muscular weakness, amounting in some cases almost to paresis. Scars from the hypodermic injections should always be looked for. The surest means of diagnosis is seclusion or close surveil-

lance for a week, during which time the demand for the drug or some abstinence symptoms, will appear.

Prognosis. — The prognosis is always very serious. Less than ten per cent. recover permanently; relapses are the rule. A few cases die from over-doses of the drug. The greater danger lies in cardiac weakness, which may lead to sudden collapse and fatal termination. The drug may be withdrawn with the proper precautions and the patients suffer no ill-effects. Often, when the patients do not relapse into morphinism, they revert to substitutes, of which the most important are cocain, alcohol, chloroform, ether, and chloral. The treatment is preëminently unsuccessful in those with strong neuropathic tendencies.

Treatment. — The only successful method of treatment is complete abstinence. For this purpose the first requisite is isolation in a reputable institution. This method of treatment, however, cannot be safely undertaken in all cases, and especially where conditions of physical weakness are present, also during pregnancy, acute and severe chronic diseases. There are two methods of withdrawal, the gradual and the rapid, the latter of which requires the greatest skill and is by far the most efficacious. The former involves much time and patience, and is apt to create chronic and disagreeable traits which in the end are as difficult to eradicate as the habit itself. For these reasons only the rapid method is outlined here. It is necessary that the patients be placed in bed. In mild cases the drug may be withdrawn abruptly. Even in these the abstinence symptoms may appear. In cases where the dose has been large, the quantity is immediately reduced one-half, and after twenty-four hours to a nominal dose of one grain daily for several days, and in the course of two weeks entirely withdrawn. During the period of with-

drawal the drug is best given in single daily doses in the early evening. If previously taken hypodermically, the drug should at once be changed to administration by mouth. Abstinence symptoms occur within the first thirty-six to forty-eight hours after the withdrawal of the drug and demand careful watching on the part of the physician. To guard against these and to add to the comfort of the patient, alcohol in small doses with light nutritious diet may be given. Where there is impending collapse, faradization of the skin, injections of ether or camphor, the administration of hot coffee or hypodermic injections of strophanthus and strychnia are indicated, the last of which is often essential. If these fail, one always finds immediate relief in return to the usual dose of morphin. The greatest restlessness and insomnia often yield to the influence of ice packs on the head. If unsuccessful, the various hypnotics may be tried. The local pains may also be relieved by the application of ice. Purgation should be applied early; this, however, is contraindicated by pregnancy or an acute or serious or chronic disease. Diarrhoea demands no special attention. Finally, it requires many months, and in some cases a year, to reëstablish the former mental and physical health so that they are able to return to their old associations without fear of relapse. Even after being fully reëstablished in health, it is necessary from time to time that the patients be subjected to close surveillance to ascertain if there is a return to the old habit.

COCAINISM

COCAIN, in distinction from alcohol and morphin in its effects, is characterized by the great rapidity with which it produces profound mental enfeeblement and physical inanition. It is of rare occurrence to encounter alone symptoms of cocaineism, because of the frequency of its complication with alcoholism and morphinism. For this reason it is difficult to draw a pure clinical picture of the disease.

Etiology. — The conditions giving rise to cocaineism are similar to those encountered in morphinism. Most of the patients have a strong neuropathic basis, and many of them have previously been addicted to morphin. Early in the history of cocaineism the habit arose from the substitution of cocaine for morphin in the treatment of the latter habit, but at the present time most of the patients are physicians or druggists. The usual method of administration is by the syringe, although it may be taken by insufflation.

Symptomatology. — *Acute Cocain Intoxication.* — Cocain in small doses produces moderate mental excitement, with a feeling of warmth and well-being, increase of pulse rate, and a fall of blood pressure. Its effects in the psychomotor field are similar to those of acute alcoholic intoxication: an excitement followed by paralysis. The patient is active, energetic, feels impelled to write, and is talkative. This condition is sooner or later followed by drowsiness. Large doses lead to delirious states with a

tendency to collapse. Nissl has found in experiments upon rabbits that in the acute intoxication there is but a very slight alteration in the cortical neurones; *i.e.* a moderate disintegration of the chromophilic granules, some staining of the achromatic substance, and a moderate increase of the glia cells.

Chronic Cocain Intoxication.—In one accustomed to the prolonged use of the drug, there is a continuous mental state of nervous excitement with a flight of ideas, complete incapacity for mental work, lack of will-power, and defective memory. The patients are over-energetic, but their activity is planless; they are talkative and very productive, writing lengthy meaningless letters, and evolving on paper impracticable schemes. They neglect their professional and home duties, also their personal appearance. In emotional attitude there is a variation between exhilaration with a pronounced feeling of well-being and great irritability and anxiety. They are very apt at times to mistrust their surroundings. At the same time they exhibit more or less indifference as to the legal consequence of their acts. The memory becomes defective and the judgment much impaired.

Physically, the most prominent symptom is the profound disturbance of nutrition; the patients lose weight very rapidly, the normal expression changes, they look sleepy and tired, the skin becomes flaccid and pale. This is due in part to the fact that the drug supplies the place of nutritious food, for which they have lost all desire, and in part to the excessive glandular action which makes a continuous drain upon the body tissues. There is muscular weakness and increased myotatic irritability, noted sometimes in the muscular twitchings. The pupils are dilated, but react normally, and there is tremor of the tongue. In the circulatory system there is slowness of

the pulse, palpitation, and a tendency to faintness. In spite of increased sexual excitement, the sexual power diminishes. The sleep is disturbed, and occasionally interrupted by hallucinations.

Upon the basis of chronic cocaineism there may develop a definite psychosis which bears close resemblance to the alcoholic delusional insanity.

Cocain Delusional Insanity.—Following a few days of irritability with anxiety and some restlessness, there appear suddenly hallucinations of different senses; the patients hear threatening voices compelling them to act strangely, and see moving pictures on the wall, which are filled with large and small objects. Characteristic of the hallucinations are the minute black specks moving about on a light surface, which are mistaken for flies, mosquitoes, and other tiny objects. This, according to Erlenmeyer, is an evidence of multiple disseminated scotoma. Peculiar sensations in the skin create the belief that they are being worked upon by electricity, being thrust with needles, or that poisonous material is being thrown upon them; but most characteristic is the sensation that foreign objects are under the skin, especially of the ends of the fingers and the palms of the hands. The muscular twitchings, they believe, are due to the action of some poison. The hallucinations of hearing make them suspicious of their surroundings. Their thoughts are being read by means of some secret contrivance; they are being spied through holes in the ceiling. Some patients become so thoroughly frightened that they attempt to kill their supposed persecutors, or in despair may commit suicide.

A characteristic symptom is the silly delusions of infidelity. These are frequently obscene in character. Wives are accused of illicit relations with men, of receiving many

love letters, of stealthily leaving the house and neglecting the family for immoral purposes, or of becoming known as public characters. In reaction to these ideas they are usually vindictive and may even become aggressive.

The consciousness remains clear. There is good orientation, except in rare instances where the excitement is very great, or immediately following fresh injections of the drug. In emotional attitude patients are always dejected, excitable, irritable, and sometimes passionate. Occasionally they are reserved and reticent concerning their delusions. In actions they are usually very restless and unstable, though some may appear quite orderly. In the markedly delirious conditions which sometimes appear there is always great restlessness.

Cocain delusional insanity develops rapidly and may run its full *course* within a few weeks. The symptoms increase rapidly under the influence of single doses of cocain. The delirious state soon disappears after the complete withdrawal of the drug, sometimes within a few days, while the delusions may remain for weeks or even months. The coexistence of morphinism and cocainism in the same individual, which is of common occurrence, frequently leads to a combination of the symptoms. Morphinism alone seldom produces a rapid development of pronounced mental disturbance, unless in connection with cocainism.

Cocain delusional insanity is differentiated from alcoholic delusional insanity by its more rapid development, the greater severity of the symptoms, and by the fact that the delusions of jealousy appear earlier and as an acute symptom. The effect of a single dose of cocain during the psychosis produces an exacerbation of the symptoms, while in alcoholism it has little or no effect. Finally, the sensation of objects under the skin is characteristic only of cocainism.

The **prognosis** in cocaineism is unfavorable for complete recovery. The symptoms of intoxication clear up after the withdrawal of the drug, but the power of resistance is profoundly affected, and few resist temptation for any great length of time.

Treatment. — The only successful method of treatment is complete abstinence. The rapid method of the withdrawal, similar to that employed in morphinism, is best. The withdrawal is usually attended only by unimportant symptoms, such as uneasiness, a feeling of pressure in the chest with difficulty in breathing, also palpitation of the heart, and insomnia, and occasionally by a tendency to faintness which simulates collapse. If such emergency arises, it is necessary to employ stimulants, as alcohol, camphor, coffee, strychnia, etc. The insomnia may be combated with prolonged warm baths, sulphonal, trional, and also by a nutritious diet. An essential element in successful treatment is confinement in an institution, where it can be determined with certainty that the patient does not have access to the drug. Prolonged treatment with the employment of every possible means to fortify him against relapses is an important factor, which requires patience on the part of the patient and perseverance and tact on the part of the physician. If morphinism and cocaineism coexist, cocaine should be withdrawn first.

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THYROIGENOUS PSYCHOSES

THE two forms of psychosis arising from disturbance of the thyroid gland are myxœdematous insanity and cretinism. They develop directly as the result of an absence of glandular activity, cretinism appearing in early childhood, and myxœdematous insanity in adolescence and later.

MENTAL DISTURBANCE OF MYXCEDEMA

The mental disturbance characteristic of myxœdema is that of a simple mental deterioration accompanied by the characteristic physical symptoms of the disease.

Etiology. — The lack of glandular activity in the thyroid is supposed to be the exciting cause by failing to neutralize or care for some toxic product of metabolism. The gland in all cases is found atrophied or diseased. This is frequently the result of connective tissue increase, sometimes of colloid degeneration, and rarely of tuberculosis or syphilis of the gland.

Symptomatology. — The onset of the mental disturbance is gradual, with increasing difficulty of apprehension. The patients do not comprehend written or spoken language as well as formerly, and are unable to collect their thoughts. It takes them longer to perform ordinary duties, such as dressing, and they also tire easily. Memory for recent events becomes defective. The increasing difficulty in applying the mind and in performing even simplest acts finally renders them completely helpless. There is no clouding of consciousness. At first they exhibit some

insight into their defects, but later this gives way to indifference and stupidity, not only in reference to themselves and their condition, but also to their environment. They rarely express pleasure or pain, and very seldom give evidence of thought for themselves or their future. In emotional attitude it is characteristic for them to be anxious, dejected, and at times fearful. Sometimes they develop restlessness and moderate excitement with stubbornness. In rare cases there may appear conditions of confusion with hallucinations and delusions.

Physically, they present characteristic cutaneous and nervous symptoms. The skin becomes thick and dry, rough, inelastic, obliterating the characteristic lines of expression in the face, producing thick lips, broad nose, and deforming the hand and fingers. The mucous membrane is similarly involved, and the tongue is thick and unwieldy. The cutaneous change is most marked in the supraclavicular region, in the upper arms, and in the abdominal wall. The voice is changed, becoming rough and monotonous, and the speech is slow and difficult. The nervous symptoms consist chiefly of headache, vertigo, fainting, convulsive spells, and a fine tremor. Finally the skin and mucous membrane become anæmic and very sensitive to cold; menses cease, and temperature becomes subnormal. The blood changes vary; sometimes there is an increase of the red corpuscles, and at other times a diminution.

Course. — The psychosis is of gradual onset, and unless appropriate treatment is applied, progresses to advanced deterioration, extreme physical weakness and profound disturbance of nutrition, the disease terminating fatally through the intervention of some intercurrent disease. Occasionally there are intermissions, and in a few cases

marked improvement occurs in spite of the absence of treatment.

Treatment. — The administration of dried thyroids of the sheep, beginning at one and one half grains, one to three times daily, may be regarded as a specific remedy in this disease. The dose is gradually increased, guarding carefully against intoxication symptoms, indicated by headache, dizziness, and irregular cardiac action. The improvement becomes evident within a week and increases very rapidly. The patients become active and show an interest in themselves and surroundings; they improve in memory and in judgment. The physical symptoms improve with equal rapidity. In the most successful cases the patient appears quite well at the end of two months, except for some lassitude, which persists for a long time. Not all cases recover through medication; the number of unsuccessful cases is difficult to ascertain at present. Relapses may occur.

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CRETINISM

CRETINISM is characterized by a more or less high-grade defective mental development, associated with loss of function of the thyroid, and accompanied by definite physical symptoms.

Etiology. — The disease is mostly endemic in mountainous regions. In Europe the cases are most numerous in the Alps and Pyrenees; in America, in Vermont. Sporadic cases occur as the result of congenital absence of the gland or its atrophy during or following a fever, or in connection with goitre. The disease arises from an organic infectious material, and is in some way associated with disease of the parathyroid gland. It is unknown whether this infectious organism is the cause of an atrophy, a non-development, or disease of these glands, in this way producing a failure of mental development; or whether it is due to the direct action of the organism or its toxin upon the nervous system. Other important factors are defective neuropathic basis and unhygienic surroundings.

Pathological Anatomy. — The morbid anatomy is still doubtful. Asymmetries and dilatation of the ventricles of the brain and atrophy have been found, also hyperostosis of the cranium. The cortical neurones are deficient in number and processes, and are of the stunted globose form peculiar to idiocy and other forms of defective development.

Symptomatology. — The symptoms of the disease are

first noticed during the first and second years, except in a few cases where the children are born goitrous. At that time they appear dull, stupid, indifferent, sleepy, and unable to care for themselves; have not learned to walk or talk, and are slow and awkward in their movements. The gland increases in size from the sixth to twelfth year in three-fourths of the cases; in the remaining it diminishes. Mentally, the patients fail to develop, presenting the symptoms of imbecility; they are dull, stupid, incapable of apprehending or of elaborating impressions, presenting about the capacity of a five-year old child. They are rather indifferent and phlegmatic, and quite incapable of applying themselves to any work. A few cases present a condition of extreme stupidity. Their condition remains unchanged throughout life, except as interrupted by short periods of excitement, similar to those occurring in idiocy. This condition may form a basis for the development of other psychoses, especially manic-depressive insanity.

Physically, the long bones fail to develop in length, instead, becoming thicker. The head is large, and the neck short and thick. The nose is broad, and the ears are prominent, the skin is thickened as if padded, and in places, especially in the neck, hanging dependent in folds. The broad face, with heavy cheeks and eyelids, with thick lips and broad short nose, presents a very characteristic picture. The limbs are large and pudgy. The tongue is thick and clumsy in its movements. The hair is scanty, and dentition is late and the teeth poor. The speech consists of inarticulate sounds, which are loud, coarse, slurring, and stammering. The movements are unwieldy, the gait slow and cumbersome. Convulsions are rare. The sexual organs develop slowly, and in severe cases

remain entirely undeveloped. Patients have little power of resistance, readily succumbing to intercurrent diseases.

Treatment.—The hygienic surroundings must be improved with special attention to drinking water. Many observers agree that it is advisable as a prophylactic measure to send children and families with cretinoid tendencies to the high mountains, which may bring about a complete recovery in children who already show some signs of disease. Potassium iodide in small doses seems to be beneficial. According to recent observation the administration of desiccated thyroid, if given early, may aid in preventing the development of the disease. After an extended duration the same drug may improve some of the physical symptoms; thickness of the skin and amenorrhoea, but the mental symptoms cannot be altered.

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DEMENTIA PRÆCOX

DEMENTIA PRÆCOX is the name first applied by A. Pick,¹ in 1891, to a group of cases including the hebephrenia of Hecker and Kahlbaum, characterized by maniacal symptoms followed by melancholia and rapid deterioration.

Since then the meaning of the term has been extended so as to include a larger group of cases appearing in earlier life, characterized by a progressively chronic course with certain fundamental symptoms, of which progressive mental deterioration is the most prominent. Some psychiatrists, especially the Italian, use the name *primary dementia*, because it enables them to include a few cases characterized by similar symptoms which appear in patients long past the period of pubescence. The group of cases as understood by us is a large one, and includes, besides hebephrenia, the catatonia of Kahlbaum and certain forms of paranoia which undergo early deterioration.

Etiology. — The disease is one of the most prominent, compromising from fourteen to twenty per cent. of all admissions to institutions. As the name indicates, it is a disease of early life. More than sixty per cent. of the cases appear before the twenty-fifth year. There is, however, a difference in the various forms; in hebephrenia almost three-fourths of the cases appear before the twenty-fifth year, in catatonia sixty-eight per cent., and in the paranoid only forty per cent. In the hebephrenic form

¹ A. Pick, Prager med. Wochenschr., 1891.

sixty-four per cent. of the cases are men, in catatonia, and paranoid forms women slightly predominate. Defective heredity is a prominent factor, as it appears in about seventy per cent. of cases. It varies somewhat in the different forms, being more prominent in the paranoid and catatonic, and least in hebephrenic forms. Acute diseases, especially typhoid and scarlet fever, act as the exciting causes in a small percentage of cases (ten per cent.). Head injuries precede a still smaller number of cases. A number of patients present mental peculiarities from youth up, such as seclusiveness, precocious piety, impulsive actions and great susceptibility to alcohol, and at least seven per cent. have always been weak-minded. Various physical stigmata are occasionally encountered, such as asymmetries, malformation of the ears and palate, puerile expression, and strabismus.

Pathology. — It seems probable, judging from the clinical course, and especially in those cases where there has been rapid deterioration, that there is a definite disease process in the brain, involving the cortical neurones. In a few cases this is a reparable lesion, but in most cases the impairment of function is permanent and progressive. This pathological basis finds clinical expression in the few cases that recover and the larger number that show a permanent mental defect. The means by which these assumed changes are brought about in the nervous system is unknown. In consideration of the close relationship with the age of puberty, the presence of disturbances of menstruation, and the frequent appearance of the disease for the first time during pregnancy and puerperium, further assumption is made that it is the result of autointoxication. It is also to be noticed that many cases of imbecility develop a psychosis different in no essential particular from

dementia præcox at the age of sexual development, and furthermore that epileptics and idiots at the same age show a tendency to undergo a decided mental deterioration. The total absence of any definite external cause, except in isolated cases, adds weight to this belief. As yet no one with the present methods of research has been able to demonstrate an *anatomical pathological basis* for the disease. Defective heredity, as well as imprisonment and acute diseases, is presumed to act by lessening the power of resistance to autointoxication.

Symptomatology.—The disease picture appears so varied that upon superficial observation the fundamental symptoms are not recognized. These symptoms, however, permit of an early recognition of the disease process and become more and more marked as the disease progresses.

In the field of *apprehension* there is usually very little disturbance. External impressions are correctly perceived, the patients being able to recognize their environment and to comprehend most of what takes place about them. This explains the fact that they remain quite well oriented, as to time, place, and person. During the acute or subacute onset of the disease, apprehension is affected, and there is some disorientation. This may also appear during transitory stupor or excitement; but even in these conditions, and especially in the apparent stupidity and indifference which characterize the later stages of the disease, it is surprising to see how many things in the environment are perceived. It is not unusual to find that they notice changes in the physician's apparel, in the furniture, or in the landscape. Nevertheless, as the disease advances and deterioration appears, apprehension, as well as other mental phenomena, becomes perceptibly impaired.

Occasionally delusions entertained by the patient lead to

a misinterpretation of some of their surroundings. They may be days or years ahead of the correct time, their nurses may be called by fictitious names, or the hospital may be regarded as a nunnery, while in other respects the orientation is correct.

Apprehension is always more or less distorted by *hallucinations*, especially in acute and subacute development of the disease. These usually disappear later in the course of the disease, but may persist into the end stages. Hallucinations of hearing are most prominent, next come hallucinations of sight, and at rare intervals we find those of touch. Hallucinations at first are distressing, resulting in fear; but later in the course of the disease they do not excite much interest, and the patients when questioned are unable to give much information about them. Some patients seem to take pleasure in listening to the voices, whose communications are both incoherent and silly. During exacerbations of the disease the hallucinations may induce the former fear and distress.

Consciousness is usually clear, but in conditions of excitement and stupor there is always some clouding of consciousness. It is, however, much less marked than one would judge from superficial observation, as the patients later are able to give some details of things that happened in the interval.

On the other hand, there is pronounced impairment of voluntary *attention*, which is one of the most fundamental symptoms. The controlling force of interest is altogether lacking, so that the presentation which happens to be the clearest and most distinct at any given moment is an accident of passing attention, never persistent enough to occasion connected activity. In spite of the fact that the patients perceive objects about them correctly, they do not

observe them closely or attempt to understand them. In deep stupor and in the stage of deterioration it is absolutely impossible to attract the attention in any way. In the catatonic form of dementia præcox the presence of negativism inhibits all active attention. This becomes evident as the negativism gradually disappears. The patients emerging from this condition are caught stealthily peeping about when unobserved, looking out of open doors or windows, and following the movements of the physician, but when an object is held before them for observation they stare vacantly about or close their eyes tightly.

There is a characteristic and progressive, but not profound, impairment of *memory* from the onset of the disease. Memory images formed before the onset of the disease are retained with remarkable persistence, — retention is good. Though their reproduction is increasingly more difficult, unusual stimulation or excitement may occasion the recollection of events long since supposed to be effaced by the advance of deterioration, — recollection is not free. The formation of new memory images is increasingly difficult with the advance of the disease. Memory for recent events is poor. Events previous to the onset, especially school knowledge, may be recalled after the patients show advanced deterioration. One patient had a remarkable memory for geography, having retained the population, area, and some of the physical characteristics of almost all of the countries of the world. Such facts are almost always recited parrot-like. Some few patients keep a careful account of the length of their residence in the hospital and elsewhere. Events during stupor and excitement are not remembered at all, or at most indistinctly.

In the earlier stages of the disease *thought* shows a characteristic *incoherence and looseness*. One finds even in

the mild cases some distractibility, a rapid transition from one thought to another without an evident association, and interpolation of high-sounding phrases. In severe cases there is genuine confusion of thought with great incoherence and the production of new words. In cases of the catatonic form especially, we meet with evidences of stereotypy; the patients cling to one idea, which they repeat over and over again. Besides, there is occasionally noticed a tendency to rhyme or to repeat senseless sounds.

In *judgment* there appears from the onset a progressive defect. While patients are able to get along without difficulty under familiar circumstances, they fail to adapt themselves to new conditions. Owing to their inability to grasp the meaning of their surroundings, their actions are irrational. This condition of defective judgment becomes the basis for the development of delusions. The patients believe that they are the objects of persecution, and they may have delusions of reference and self-accusation. The lack of judgment becomes still more apparent in the silliness of their delusions. At first the delusions may be rather stable, but later they tend to change their content frequently, adding new elements suggested by the environment. Even relatively persistent delusions are constantly taking on new meanings. Furthermore, the delusions, which at first are of a depressive nature, later may become expansive and grandiose. In most cases the wealth of delusions so apparent at first gradually disappears. A few delusions may be retained with further elaboration from time to time, but they are usually expressed only at random. During exacerbations the former delusions, whether depressive or expansive, may again come to the foreground. In the paranoid forms, however, there

persists from the beginning a great wealth of delusions, but these become more and more incoherent.

The disturbance of the *emotional field* is another of the characteristic and fundamental symptoms. There is a progressive, more or less high-grade, deterioration of the emotional life. The lack of interest in the surroundings already spoken of in connection with the attention may be regarded as one phase of the general emotional deterioration. Very often it is this symptom which first calls attention to the approaching disease. Parents and friends notice that there is a change in the disposition, a laxity in morals, a disregard for formerly cherished ideas, a lack of affection toward relatives and friends, an absence of their accustomed sympathy, and above all an unnatural satisfaction with their own ideas and behavior. They fail to exhibit the usual pleasure in their employment.

As the disease progresses the absence of emotion becomes more marked. The patients express neither joy nor sorrow, have neither desires nor fears, but live from one day to another quite unconcerned and apathetic, sometimes silently gazing into the distance, at others regarding their surroundings with a vacant stare. They are indifferent as to their personal appearance, submit stupidly to uncomfortable positions, and even prodding with a needle may not excite a reaction. Food, however, continues to attract them until deterioration is far advanced. Indeed, it is not unusual to see these patients go through the pockets and bundles of their friends for goodies, without expressing a sign of recognition. This condition of stupid indifference may be interrupted by short periods of irritability.

Early in the disease, and especially during an acute and subacute development, the emotional attitude may be one of depression and anxiety. This may later give way to

moderate elation and happiness. The latter, however, in a few instances prevails from the onset. Yet emotional deterioration remains a fundamental symptom.

Parallel with the emotional disturbances are found disturbances of *conduct*, of which the most fundamental is the progressive *disappearance of voluntary activity*. One of the first symptoms of the disease may be the loss of that activity which is peculiar to the patient. He may neglect his duties and sit unoccupied for the greater part of the day, though capable of doing good work if persistently encouraged. Besides this characteristic inactivity, there may appear a tendency to impulsive acts. The patients break out window lights, tear their clothing into strips, leap into the water, break furniture, throw dishes on the floor, or injure fellow-patients, all of which seems done without a definite motive. These states usually pass off very quickly, though in some this tendency may be more marked for a period of a few days.

The inability to control the impulses is also present in the stuporous conditions, and especially in the catatonic form of dementia præcox. Here each natural impulse is seemingly met and overcome by an opposing impulse, giving rise to actions directly opposite to the ones desired. In this condition, which is called *negativism*, the patients resist everything that is done for them, such as dressing and undressing, they refuse to eat when food is placed before them, to open their mouth or eyes when requested, or to move in any direction. In extreme conditions there may even be retention of urine and fæces. This condition varies considerably in intensity at different times. It is not unusual to see the patients suddenly relieved of it, assume their former activity, talking freely and attending to their own needs, and again after an interval of a

few hours or days relapse gradually into the negativistic state.

Still another condition is produced by the repeated recurrence of the same impulse, giving rise to a great variety of *stereotyped movements and expressions*. The verbigérations and mannerisms of the catatonic are explained in this way. The patients repeat for hours similar expressions, utter monotonous grunts, tread the floor in the same spot, dress, undress, and eat in a peculiar and constrained manner. While these symptoms vary considerably in individual cases, it is unusual not to find at least some of them present in every case.

The *capacity for employment* is seriously impaired. The patients may be trained to do a certain amount of routine work, but they utterly fail when given something new. A few patients display artistic abilities, as, for instance, in drawing or in music, but their efforts are characterized by eccentricities. They may show some technical skill, but their productions exhibit the absence of the finer æsthetic feelings.

Physical Symptoms.—Most prominent is the disturbance of nutrition. The patients suffer from anorexia, and lose in weight. The sleep is usually much disturbed. The heart's action is sometimes retarded, sometimes accelerated, and often weak and irregular. Occasionally vasomotor disturbances have been noticed, such as cyanosis, dermatographia, and excessive perspiration. In many cases there has been detected a diffuse enlargement of the glands. The menses almost always cease. The pupils occasionally are dilated, and especially during conditions of excitement and stupor. The tendon reflexes are usually increased as well as the myotatic irritability. All of these symptoms tend to disappear later in the course of

the disease, when the patients develop a good appetite, take on weight, the menses reappear, and the skin assumes its normal condition. Some observers have reported fainting and epileptiform attacks in eighteen per cent. of cases. Hysteroid convulsions and paralyses and localized contractures have also been noted.

HEBEPHRENIC FORM (*Hebephrenia*)

THE *onset* of the psychosis in this form varies. In a few cases it is so insidious in origin that the relatives are unable to place the date of the appearance of the first symptom. Usually the patients complain first of headache and insomnia, then a gradual change of disposition comes over them. They lose their accustomed activity and energy, becoming self-absorbed, shy, sullen, and seclusive, or perhaps irritable, obstinate, and careless. They may become rude and assertive, or they may be perfectly indifferent. They are careless of their obligations, are thoughtless and unbalanced. They accomplish nothing, but rather sit about unemployed, apparently brooding or engaging in useless conversation, or they leave their work to go to bed, lying there for weeks without evident reason. Others, instead of this inaction, exhibit a marked restlessness, and continuous effort is impossible. They leave their work, stroll about or ride wheels from place to place, especially at night. Others, with increased sexual passion, indulge in illicit and promiscuous intercourse.

During this period, which may extend through several months, there are apt to be remissions, when for a short time the patients improve greatly and may even appear natural. Women show premonitions of the disease during the menses.

More often the onset is characterized by a period of depression, when the symptoms appear more rapidly and are more pronounced. Here the patients become more

apprehensive, dejected, sad, and sometimes suspicious. They are troubled with thoughts of death, life seems to have lost its charms, and friends appear indifferent. Their mental condition at this time often leads to suicidal attempts. *Hallucinations*, especially of hearing, and less often of sight, appear at this period. The patients are annoyed at strange noises, unintelligible voices, unfavorable comments upon their personal appearance; they hear threats and imprecations, music and singing, telephone messages, and commands from God. They may also see heavenly visions, crosses on the wall, dead relatives, frightful accidents, and deathbed scenes. Occasionally they smell various odors, especially illuminating gas and sulphur. A patient may experience various hyperæsthesias which lead him to believe that his head is double, that the throat or nose is occluded, that the genitals are being consumed, or that the bowels are all bound together.

Preceding the appearance of the hallucinations, and accompanying them, there develops a tendency to the formation of *delusions*, which are almost always of a depressive character. The patients believe themselves guilty of some crime, accuse themselves of being murderers, claim that they are lost, are damned, are unfit to live, have practised self-abuse, and can never recover from its ill effects. They suspect their surroundings, detect poison in the food, are being worked upon by others, their thoughts are not their own, friends have turned against them and are trying to do them harm, some one is watching them constantly, and they are being harassed by various agencies. Women are followed by men who would ravish them. Later in the course of the disease, and occasionally from the onset, the delusions are expansive; the patients regard themselves as prominent

individuals, the President, the Son of God, the Creator, the possessor of the universe, they converse with God, are the Saviour of men, have all knowledge imparted to them or can stop all wars by lifting their hands. Some of these patients are controlled by sexual ideas. They fancy that they are betrothed to prominent individuals of the opposite sex. Men believe themselves possessed of many wives, or regard themselves as the centre of attraction for all women.

These delusions may be augmented by numerous *fabrications*; the patients claiming that they have been President for a century, chief commandant in various engagements, have been knighted, that they have been in heaven, have possessed the key of hell, have just returned from a visit to Mars, where there is eternal war. These fabrications, together with delusions, gradually recede to the background. At first they become fewer, less fantastic, then incoherent, and still more scanty, until finally in the advanced stages of the disease there remain only incoherent residuals, which may never be expressed except as the result of questioning or during excitement.

Some *insight* into their condition is often expressed at first by the patients. They are conscious that a change has come over them, and often complain that the head feels strange, benumbed, and empty. These may be expressed in connection with somatic delusions, the patients saying that the brain is rotting, the memory is failing, that they are different in every way and are very much confused. Even this scanty insight gradually disappears as the disease progresses.

In those forms of the disease which develop slowly there is at first neither *clouding of consciousness* nor marked disturbance of orientation. In the acute or subacute onset

cloudiness and general disorientation may unite in the clinical picture with pronounced hallucinations and delusions, anxiety and restlessness and incoherence of thought. The patients mistake persons, do not appreciate where they are, and are unable to record passing events. The physicians are regarded as enemies, trying to kill them, working upon them with electricity, etc. They are confined in a prison for some grave offence, or are among the heavenly hosts, surrounded by saints. A patient, although he recognized the physician, still believed that both the physician and himself had been entrapped in a prison and that they must hasten to escape.

The *association of ideas* is at first very little disturbed, the content of speech being both coherent and relevant, but later in the disease with progressive deterioration thought suffers profoundly. The ideas become disconnected and incoherent. Questions fail to elicit anything more than monosyllables, or entirely irrelevant remarks.

The *memory* from the onset presents a progressive deterioration, at first mostly for recent and passing events. The memory of earlier life and the chronological order of events is well retained for a long time. Some of the patients are able to tell with surprising accuracy the exact definitions in geography and many historical events almost word for word, as committed to memory years before. The events dating from the onset of the psychosis, with notable exceptions, such as time of admission to hospital, etc., are not remembered, or at best only imperfectly.

The patients may be able to control their *attention*, but they do not try to do it. There is a total lack of interest. Without this there is no incentive for observation and thought, and they fail to observe what is going on about them. As the disease progresses, there is increasing limita-

tion of thought. For this same reason their past experiences are seldom recalled, and so finally fade from their memory; though it is not unusual for them, in reaction to unusual stimulation, to recall events that seemed to have entirely passed from them.

The defect in *judgment* appears early, develops rapidly, and becomes profound. This may not be so evident while the patient is confined at home, or during the early part of his residence in an institution, as long as his thought is employed with familiar facts and his range for action limited. It becomes apparent, however, when he leaves the trodden path and attempts to adapt himself to new circumstances. He is unable to reason, to perform mental work, to recognize contradiction, or to overcome obstacles. The defect can also be seen in his tendency to formulate and hold to senseless, incoherent delusions.

In *emotional attitude* the most prominent and permanent feature is that of emotional dulness and indifference. Whenever we do find emotional activity it is increasingly self-centred. At first there is usually more or less depression, with anxiety, peevishness, and often irritability. Exaggerated expressions of religious feelings are apt to be prominent, the patients being devout, praying frequently, reading their testaments, at first apparently in the spirit of penitence, but later because they are led by God or ordained to do some special work. The sexual feelings very often play a prominent role, particularly in those who have been addicted to the habit of masturbation. Thought may centre about sexual matters; they enjoy obscene literature, write long letters to acquaintances, giving expression to their lascivious feelings, they masturbate and solicit intercourse. The female patients are more apt to associate with their own sex. In both sexes these feelings are apt

to disappear later in the course of the disease. Later in the disease the delusions, both expansive and hypochondriacal, are expressed without display of emotion. They fail to express emotion at the loss of friends, at the visits of relatives, or at an unusual supply of food, fruit, or candies. They live a very empty life, devoid of any cares or anxieties, and without thought for the future.

In *conduct* and *behavior*, the most characteristic symptom is that of childish silliness and senseless laughter. The voluntary activity is inconsistent and lacks independence. At one moment they are increasingly headstrong, at the next as supremely tractable. They neglect their personal appearance, perform all sorts of outlandish and foolish deeds, such as prowling about all night, setting fire to buildings, throwing stones to break windows, travelling about without evident purpose. They may even run away and secrete themselves, or as unexpectedly demand some one in marriage, forget their obligations, and finally are completely incapable of continued and comprehensive employment. A young man was found throwing stones into trees because the voices of evil spirits annoyed him. A student ran from his mates to a graveyard and covered himself with leaves in order to obtain aid in committing his ivy oration. A girl of fourteen attempted to stab her lover, believing him unfaithful. A young married woman solicited intercourse among gentlemen friends, even bringing them to her home for that purpose in the presence of her husband and children.

The patients are very often seen to converse with themselves, sometimes aloud, while associated with this there is almost always silly laughter. This silly laughter is a very prominent and characteristic symptom. It is unrestrained, appears on all occasions without the least provocation, and

is altogether without emotional significance. Besides these actions, mannerisms, such as peculiarities of speech and movements, eating and walking, are often present. A few of the mannerisms characteristic of the catatonic may prevail: echolalia, echopraxia, stereotyped expressions and movements.

Their speech presents peculiarities indicative of looseness of thought and confusion of ideas. Their remarks may be artificial, containing many stilted phrases, stale witticisms, foreign expressions, and obsolete words. The incoherence of thought becomes most evident in their long drawn out sentences, in which there is total disregard for grammatical structure. The structure changes frequently, and there are many senseless interpolations. All this becomes even more apparent in their letters, which are verbose with frequent repetitions, while the handwriting is characterized by a marked lack or a superfluity of punctuation marks, shading of letters, and copious underlining.

Physical Symptoms.—During the onset of the disease the condition of general nutrition suffers. There is a loss of weight, and some patients even become emaciated. The appetite is poor. Patients eat sparingly or not at all, restrained by suspicion and fear, or because they are so directed by God. The sleep also is much disturbed, both by anxiety and distressing dreams. The pupils are occasionally dilated. The tendon reflexes may be exaggerated, and vasomotor disturbances may be present. The skin loses its normal healthy appearance, becoming dry and flaccid. The menses cease or become irregular. Later in the course of the disease the appetite returns and often becomes excessive. At this time the weight often rises rapidly, and the emaciated condition is frequently replaced by great corpulence. The menses also reappear and remain

normal, and the evidences of muscular and nervous irritability disappear.

Course.—The course of disease in this form is *progressive*, leading to characteristic states of mental deterioration of different grades, except in a very small percentage of cases. The course is marked by short periods during which the patients show great motor restlessness, irritability, sexual excitement, silly aggressiveness, and great show of emotion; there may be a clouding of consciousness with great impulsiveness, increased incoherence of thought, singing, dancing, and insubordination. These states of deterioration are usually reached within two years of the onset. In some cases, where the development of the disease has been very rapid, the deterioration appears in six months; in other cases it may not be evident for a few years. The degree of mental defect increases from year to year, more especially following the transitory periods of excitement.

Of the cases that are admitted to insane institutions, about *seventy-five per cent. reach a profound degree of deterioration*. These patients are dull, indolent, apathetic, anergic, sluggish, and fail to apprehend the surroundings. They remain seated for hours wherever placed, are incapable of caring for themselves, are untidy, have to be dressed and undressed, and led to meals. At table they are slovenly, spattering and smearing themselves with food. They give but little evidence of voluntary activity. They seldom speak, are unproductive and mute; occasionally they may be seen to laugh sillily or repeat to themselves some unintelligible word or syllable.

Their attention is attracted with difficulty and held only for a short time. External objects usually fail to make an impression upon them. Questions are apparently

uncomprehended, seldom exciting intelligible answers. These are usually monosyllabic and irrelevant. Simple directions, however, may be correctly carried out. Relatives and acquaintances may not be recognized. Bits of former knowledge are retained in many cases for a long time, such as historical and geographical facts and the ability to solve problems in arithmetic. In this respect the patient often surprises one. One of my patients was able to name the islands of the Pacific and give the names of their sovereignties. Another, who for two years had been mute, unable to care for himself, untidy, sitting through the day with bowed head, entirely unmindful of his surroundings, recognized a college mate, straightened up with an air of dignity, and laughed at some college jokes. In the course of time even such relics of former mental activity disappear, and we have nothing left but the unproductive vegetative organism. A few patients retain some remnants of mental activity, but they are quite unbalanced, silly, and present the residuals of hallucinations and delusions. Instead of the extreme stupidity and indolence some patients continue restless and talkative, producing an incoherent babble with silly laughter. During the periods of transitory excitement these patients are very apt to be aggressive, breaking windows and attacking fellow-patients, to masturbate shamelessly, pull out their hair, and frequently show homicidal tendencies.

In about seventeen per cent. of the cases the degree of deterioration is not as far advanced. These patients, after the subsidence of the more acute symptoms, show a certain amount of mental activity and are capable of some employment under supervision. They are oriented and have a certain amount of insight into their mental incapacity, but lack mental energy and the power of applica-

tion. They have little interest in the surroundings, no care for their own livelihood, and no thought for the future, but are contented to live and be cared for. In conduct they are apt to present many mannerisms.

The judgment is weak and memory defective. Important events may be retained, together with school knowledge, but memory for events subsequent to the onset of the psychosis is very poor, while they are quite incapable of acquiring additional knowledge. The hallucinations and delusions of the various stages of the disease for the most part entirely disappear. While retained in a few cases, they are of little importance to the patients, rarely influencing their behavior. As in the other grades of dementia, so here, there is a tendency for the deterioration to increase as the patients advance in age. This is especially noticeable following short periods of excitement, which are apt to be coincident with menstruation. At these times the patients show motor restlessness, with great irritability and sometimes violence, with a reappearance of former delusions and hallucinations, talkativeness, silly behavior, and incapacity for employment. The delusions are more apt to be expansive, changeable and incoherent, but at times there may be verbigeration and repetition of single phrases. The actions are usually purposeless.

A few cases leave the institution apparently recovered, but upon reaching home the patients fail to employ themselves profitably. They spend much time in reading, evolving impractical schemes, pondering over abstract and useless questions. Or, if employed they show a lack of interest, are unbalanced, and unable to advance in their profession or occupation. Later their field of thought becomes more circumscribed and their relations with the

outside world correspondingly meagre. They become seclusive and so much disinterested in intellectual work that they pass their time in purely machine-like action, engaged in gardening or transcribing.

Finally in about *eight per cent. of the cases the symptoms of the disease entirely disappear, leaving the patients apparently in their normal condition.* Not all of these cases should be regarded as perfect recoveries, because in some instances there have been recurrences in later life, followed by deterioration. In still other cases there has been a stunting of mental development. The patients have been unable to realize their ambition. Young men and women whose academic or collegiate courses have been interrupted by the psychosis find themselves unable to enter into active business or professional life. These patients are able to care for a farm or a small business where there is little demand for intellectual work. In this way we lose sight of the mental shipwreck following dementia præcox, because enough mental capacity is retained to permit them to maintain the battle of life in their chosen narrow field.

CATATONIC FORM

The catatonic symptom-complex, first described by Kahlbaum in 1874, and which by several psychiatrists is regarded as a separate disease process, is by us considered a form of dementia præcox.

This form is characterized by *a peculiar condition of stupor, with negativism, automatism, and muscular tension; excitement with stereotypy, verbigerations, and echolalia, leading in most cases, with or without remissions, to a condition of mental deterioration.*

There has been no special *pathological basis* discovered for this symptom-complex. Alzheimer has described cases running the fatal course of an acute delirium, which he believed belonged to catatonia. In these he found profound changes in the cortical neurones of the deeper layers. The nucleus was much swollen, its membrane wrinkled, and the cell body shrunken, with a tendency to disappear. In the glia there was an increase of fibres which fastened about the cell in a peculiar manner. Nissl, later in the disease process, has demonstrated extensive changes in the cortical neurones, which he designates as granular degeneration. Even in cases where there appeared to be no atrophy in the cortex, he found a number of cells which had undergone degeneration. In the deeper layers of the cortex very large glia cells were found which normally appear only in the outer layer. Elsewhere the cortex contained glia cells which were in

close approximation to the degenerated nerve cells, and not only at the base of the cell body, like the satellite cells, but also around it.

The *onset* of the psychosis is usually subacute, with a condition of mental depression. The patients for several weeks before the onset may have appeared unusually quiet, serious, or even anxious, complaining of difficulty of thought, of headache, or of peculiar sensations in the head. Besides this, they may have suffered from insomnia and loss of appetite, and have left their work because of nervousness and general ill health. Gradually the patients show great anxiety, and express fear of impending danger. Their religious emotions become more prominent, and *hallucinations* and delusions appear. A voice from heaven directs them to do all sorts of things. One patient is commanded to spit to the right, and another to convert sinners. There is a vision of Christ on the cross, the Virgin Mary appears, faces are seen at the window and pictures on the wall, spirits hover about, some one speaks from the radiator, and there is music in the next room. He hears his children cry for help. Some one calls his name, and he hears his own thoughts. Little birds speak to him. Specks of poison are detected in the food, sulphur fumes are set free about him, some one pulls at his hair, injects water into his limbs, or applies electricity to him.

The *delusions* are usually of a religious nature, are incoherent and changeable from day to day. The patient is persecuted for his sins, a priest has come to anoint him before he dies. God has transferred him to heaven, where he is surrounded by angels. He no longer needs food, as Christ has forbidden him to eat. He is eternally lost, is possessed of the devil, has caused destruction of the whole

world; all are dead, he is surrounded by spirits, battles are being fought outside, his children are lost, the wife false, his body has been transformed, his head replaced by that of a horse, his feet transformed into mules' hoofs, his hands into claws, his brain has been drawn off, and while hung to a cross, his limbs and body have run away like molten metal. The delusions usually become expansive later, though they are occasionally expansive from the onset. The patient then believes himself transformed into Christ, has all power, can create worlds, has lived for thousands of years, has waged many wars, possesses all knowledge, can instruct physicians in medicine, can cast out evil spirits, has pleaded in the highest courts, is a millionaire, and possesses railroads, ocean steamers, etc.

During the earlier stages of the disease some peculiarities of movement and action appear, of which *constraint* is the most prominent. This may increase to a state of muscular tension. The patients assume constrained attitudes, holding the arms in awkward positions, as in the form of a cross, etc., standing or walking in an awkward manner, all of which may be symbolical of their ideas. One patient stood for hours with hands behind him and head thrown back, staring fixedly at the ceiling, and another lay in the form of a cross upon the floor. In some there is a tendency to execute rhythmical movements, such as rolling the head from side to side, or expectorating at stated intervals in a fixed direction.

In this period of depression the *consciousness* is somewhat clouded, orientation is slightly disturbed, and the patients do not apprehend clearly what goes on about them. They may know that they are at home or in an institution, but they fail to appreciate the mental condi-

tion of their fellow-patients, mistake those about them for friends and acquaintances, or they claim that everything is changed and that they cannot understand the mysterious occurrences. Some believe themselves translated to heaven, that they are in a cloister or in a foreign city.

Thought is much disturbed, being incoherent and disconnected. The patients are quite unable to reason. When questioned about their ideas they make all sorts of contradictory and irrelevant remarks. The memory, on the other hand, is good except for events since the onset of the psychosis. The attention can be maintained only for short periods.

The *emotional attitude* is at first quite in accord with the delusions and hallucinations. The patients are sad, dejected, anxious, complaining, irritable, distrustful, and sometimes threatening; when interfered with, they are very apt to become violent. Occasionally sexual excitement leads to masturbation and obscenity. Later they lose their early anxiety, become indifferent or contented with their environment, and the delusions are expressed without emotion. Some patients are even cheerful and happy, or ecstatic.

Following this period of depression the more characteristic catatonic symptoms appear, namely: the *catatonic stupor* and the *catatonic excitement*. In at least one-third of the cases these symptoms appear at the very onset of the disease without the prodromal period of depression.

The symptom most characteristic of the catatonic stupor is *negativism*. In negativism the voluntary impulses seem to be overcome by counter impulses. The patients may begin an act readily, but immediately a counter impulse checks and finally overcomes the for-



PLATE 1. Muscular tension in catatonic stupor, producing "Snautzkrampf."

mer, producing an action contrary to the desired one. These adverse impulses may suddenly disappear, when the actions of the patient again become perfectly free. Negativism usually occurs first as mutism, when the patients refuse to speak. They begin by speaking low, breaking off in the midst of a sentence or answering in monosyllables, then they may whisper unintelligibly, and finally refuse to speak altogether. Some patients in this condition may be persuaded to write or sing answers to questions. When addressed they remain with closed eyes or staring fixedly at some distant object, apparently paying absolutely no attention to the physician. Even shaking patients, pinching them, or prodding them with a needle fails to elicit a response, except when in pain, then the lips may become more closely pressed together or the patients may move away indifferently.

Further evidence of negativism is seen in the obstinate and persistent resistance which the patients make to every attempt at handling them. They resist being put to bed and being taken out, dressing or undressing, moving forward or backward, opening the eyes or closing them. The active resistance is well demonstrated by suddenly withdrawing the hand which has been placed against the patient's forehead, when it springs forward with a jerk. The physical origin of this resistance becomes more apparent in those cases in which the desired action is only elicited by commanding the patient contrawise. One may get a patient to open his eyes by urging him to close them tightly, to lower the hand by telling him to lift it, etc.

Even the most natural impulses are resisted, as seen in their stubborn refusal to wear shoes or stockings, in the tendency to sit on the floor rather than in a chair,

or to sleep under the bed and not in it, and go to the closet by the longest route. They prefer to eat another's food, and some persist in crawling into the beds of others. Finally the refusal of food and the retention of urine and feces are evidences of more extreme negativism. The former may last for months. The absence of food for a week will not overcome this disinclination to take food voluntarily. It is not unusual for this form of negativism, as well as the others, to appear and disappear suddenly. Sometimes the patients will begin to eat if transferred to another building or to speak if placed in another ward, or will remain in bed if given a different bed. The urine and feces may be retained until there is marked distention. In a few cases it is necessary to overcome this by catheterization and enemata. This may be partially accounted for by the condition of muscular tension, which is usually associated with negativism. The *muscular tension*, though exhibited in several ways, is most marked in the extraordinary uniformity of position maintained by the body or its various parts. In this condition patients maintain the same position for weeks and even months. The usual position is on the back with limbs stretched out, the eyelids closed with the eyeballs rolled upward and inward, or with the eyes open, staring fixedly in the distance, the face mask-like with lips slightly closed and at the same time protruded, producing what the Germans call *Snautzkrampf*. The hands are very often clenched, as if there were permanent contractions, the fingers producing pressure marks on the palms. Plates 1 and 2 represent two stuporous catatonic patients. The boy rigidly maintained this uncomfortable position for weeks, with his head thrown far backward, eyes tightly closed, and face mask-like with protruded lips. While in



PLATE 2. Muscular tension in catatonic stupor.



this condition he required daily feeding by nasal tube. The woman has maintained this same position for over two years without a known voluntary attempt to change it. The body and head are slightly bent forward with the eyes staring directly in front of her, the lips protruded, the arms flexed, and hands so tightly clenched that cotton must be placed in the fists to prevent pressure sores. While in bed she lies straight upon the back with knees strongly adducted, and arms drawn closely to the chest, but with the fists in the same constrained position. During this long period it has been necessary to feed her by spoon. Others lie rolled up like a ball, with head thrown forward and knees drawn to the chin. In the extreme condition these patients may be rolled about or lifted and laid across some object without movement, as rigid as a piece of wood.

Where muscular tension is less pronounced, the limbs may be moulded into any position, which condition is called "*cerea flexibilitas*." Plate 3 illustrates this form of muscular tension. This patient has been moulded into this awkward and very uncomfortable position, which she maintained until relieved. The feet are separated, drawn backward and elevated so that the toes barely touch the floor; the arms are elevated and drawn backward, and the head is extended as far as possible. Muscular tension is not evenly distributed, but is most frequently seen in the hands, arms, face, and lower limbs. The gait is often influenced by this condition, some patients being unable to move at all, falling rigidly to the floor when raised to their feet; others walk stiffly, with unbent knees, on tiptoes, or on the outer side of the feet with the body bent forward or backward. The movements are usually slow and constrained. Sometimes the counter impulses seem

to be suddenly overcome and the movements become rapid.

A condition which seems to be directly the opposite of negativism is occasionally met during the stupor. Instead of increased resistance to every impulse, there is *greater susceptibility to suggestion, producing echolalia and echopraxia*. The patients repeat quite mechanically that which is said to them or done before them. Questions asked are only repeated, the songs of another are sung over after them, and the actions of another patient or of the physician are repeated, such as limping or offering the hand to be shaken, and rolling the head about after the stereotyped fashion of another patient.

These opposite states pass directly from one to another during the stage of stupor. Absolute silence suddenly gives way to loud and unrestrained shouting or to incessant prattle, the patients awake from the stupor and talk as if nothing had happened, and again in a few hours relapse into their former stuporous state.

Interrupting the stupor or following it, and sometimes even preceding it, we have the *catatonic excitement*, which is characterized by *impulsive actions* and *stereotyped movements*. The condition of excitement usually makes its appearance rapidly. The patients suddenly leap from bed, tear their clothing, break the furniture, race about the room, shouting or singing, throw themselves upon the floor, rotating the head from side to side, breathing rapidly, churning saliva in the mouth, making a peculiar blowing sound, or rotating and pronating the forearm. They may run about the house for hours at a time, striking the bed or the wall in a certain place. While lying in bed the body may be swayed regularly back and forth, or the bed tapped at a certain place at regular intervals.



PLATE 3. Cerea flexibilitas in catatonic stupor.



In walking they are apt to assume peculiar attitudes. One patient stood for hours against the wall in the form of a cross repeating, "the Father, the Son and the Holy Ghost," another holding his nose tightly with his hands uttered a monotonous grunt for hours at a time. These movements may be less constrained and regular when the patients jump about from one object to another, pounding themselves, knocking their heads against the wall, wringing their hands, jumping up and down on the bed and stamping on the floor. All of these most varied movements are carried out with great strength and recklessness, without regard for the surroundings or themselves, and are for the most part purposeless and impulsive. In the midst of their ceaseless tramping about the room they may suddenly grab at the clothing of the physician or assault a fellow-patient. During this excitement the patients are very untidy and filthy, expectorating in the food, smearing with feces and food, urinating in the bed and clothing, and even washing themselves with the urine. Sexual excitement very often accompanies this condition.

Another prominent symptom of this stage of the disease is the *mannerisms* in facial expression and speech. Accompanying speech there is a peculiar gesticulation, winking of the eyes, senseless shaking and nodding of the head, and drawing of the muscles of expression. The voice assumes a peculiar intonation or may quiver. The manner of speech may be scanning, rhythmical, or explosive. The content of speech is often quite characteristic, consisting of a series of senseless syllables repeated in a fixed measure or rhyme. Words or short sentences are likewise repeated; the words may be clipped or the last syllable drawn out. Usually these expressions bear no relation to the trend of conversation.

One patient, when asked how he felt, repeated for three minutes, "I see you, I see you." The formation of new words often accompanies the senseless repetition of syllables, making a childish babble which the patients may repeat for hours. Verbigeration is especially noticeable in the letters. The excessive underlining, shading, and addition of symbols are clearly manifestations of the tendency to mannerisms. The accompanying illustration is a sample of the writing of a catatonic patient, representing an envelope addressed to her physician.

Present Bibles Loocust
Revererend. Mr. Croleburne
Present Bibles Loocust
God's Present Bibles
Loocust Physiciani
Present Bibles Professore
(D. D.) (M. D.) (D. D.)

FIG. 1. CATATONIC WRITING.

The conditions of catatonic stupor and catatonic excitement succeed each other during the entire course of the disease, and often quite suddenly. The degree of stupor and excitement varies considerably in individual cases.

As in the depressive stage, so also during the catatonic

stupor and excitement, the *consciousness* is somewhat clouded, but the patients seldom lose their orientation completely. In spite of the fact that they seem quite unconscious of and unable to comprehend their surroundings, the patients awake from this condition and give the names of those about them, telling the day and the month, and showing surprising knowledge of what has happened within their limited range of observation.

At first there is occasionally some *insight* into the mental disturbance, the patient remarking during the depression that his head is not right, and later, during the excitement, that many of his constrained and peculiar acts are foolish, but that he cannot help doing them. Others explain them by saying that they are commanded to do so by God. On the other hand patients are quite unable to appreciate the necessity for their confinement or for the care of a physician. The *emotional attitude* after the marked dejection at the onset is quite in accord with the delusions. Occasionally there is noticed childish petulance or irritability.

Physical Symptoms. — In some cases elevated temperature varying between one hundred and one hundred and two degrees during the acute onset of the symptoms may persist for two or more weeks. There are very apt to be vasomotor disturbances, appearing as cyanosis, dermatographia, and localized sweating. Convulsive attacks are also encountered in a few cases, mostly during the onset. There is loss of weight during the stage of depression. This becomes more prominent during the stupor and may reach a stage of extreme emaciation in spite of forced feeding. Later, sometimes beginning during stupor, the weight rises. During the stage of deterioration the patients usually become quite fleshy. During stupor the

skin is cold and clammy, the heart's action slow and feeble and the bowels constipated.

Course. — The usual course in the catatonic form is depression, followed by excitement, passing into deterioration. In a few cases the stupor is immediately followed by dementia without the intervention of the characteristic excitement. Occasionally the excitement precedes the stupor and may even appear at the very onset of the disease.

A prominent feature in the course of the disease, which rarely appears in other forms of dementia præcox, is the *remissions*. Remissions for a few days or a few hours occur in almost all of the cases. The consciousness of the patient becomes perfectly clear, they apprehend and remember events, are quiet and rational and often express a feeling of illness. At these times close observation discloses a certain restraint in manner and actions, a distorted emotional attitude, and a lack of full appreciation of their previous condition. In at least one-third of all the cases the remissions are long enough for the patients to seem to have completely recovered. It may last from five to fifteen years. In these cases one often detects certain peculiarities, indicating that recovery is not complete, such as irritability, seclusiveness, and forced, affected or constrained manners. These remissions more frequently appear after stupor and are followed by excitement.

The outcome in *eighty-six per cent.* of the cases is ultimately *mental deterioration, which in thirty-nine per cent. becomes extreme*. In these cases usually within two years the stupor and excitement disappear and the hallucinations and delusions become less prominent, but the patients remain sluggish and indifferent, without mental energy. They are able to comprehend simple questions, but they lack mental initiative. The memory is defective, the

judgment poor, and they are unable to acquire new knowledge. They have no regard for themselves, their personal appearance, or their future. They remain contented wherever they happen to be, never expressing desires. They are wholly unfit for intellectual employment, as they have no idea of how to work. Upon questioning, and voluntarily in a few cases, delusions and hallucinations are expressed; the former are usually expansive but quite incoherent and without effect upon the bearing of the patient.

Some of the patients are very inactive, remaining stupidly in one place most of the time, sometimes muttering to themselves, but taking no interest in their surroundings. Other patients are active, restless, and unbalanced. In both of these groups, and especially in the latter, we find mannerisms which are the residuals of former stereotypy. The movements lack freedom, are constrained and peculiar; the patients walk on tiptoe, along cracks, or with bent limbs, with head thrown forward and with cramped hands. The head is usually held in peculiar positions. When sitting they always assume fixed positions, shaking or nodding the head at regular intervals, making a blowing noise with the lips or grunting. They pass to meals only through certain doors, or perhaps backwards. The mannerisms are especially marked in dressing and at table.

They may eat with great rapidity, filling the mouth to its fullest extent before swallowing. Others eat very deliberately, waiting a certain interval between mouthfuls, perhaps counting three, each bit of food being prepared and carried to the mouth in a certain definite manner. Many patients eat with their hands, others hold the knife and fork in some peculiar fashion. One of my patients

refused to eat unless he had been allowed to stand on his head and crawl under the table. Similar mannerisms are evident in speech and writing. In speech there may also be a tendency to form new words, especially during the transitory periods of excitement, when the patients produce a genuine word-jumble.

The deterioration gradually deepens, and especially following short periods of excitement, which appear in almost all cases. At these times the patients are restless, irritable, and threatening, expressing delusions of persecution; in speech the confusion becomes marked, with shouting and laughing. There is a great tendency to perform impulsive acts, breaking furniture, attacking individuals, and even becoming homicidal.

In twenty-seven per cent. of the cases the dementia is of a lighter grade. Here the patients return to clear consciousness, are quiet and orderly, are able to return home, and in a few cases resume their former occupations. But a profound change in the character is noticed; their former mental vigor does not return, they are listless, dull, lack energy and endurance. Their judgment is defective. They are cleanly and except for a few catatonic mannerisms might be regarded as well. Some of these patients are very quiet, seclusive, distrustful, or over-conscientious; while others are somewhat childish and silly.

In about thirteen per cent. of the cases patients seem to recover. Some of these patients manifest some peculiarities in conduct and a change in character which is apparent only to those associated closely with them. A certain number of these cases after five to fifteen years suffer from another attack which leads to deterioration.

As yet there are no means of judging which cases will recover, have long remissions, or lead to different degrees

of deterioration. This much can be said, however, that those with rapid and more acute development are more apt to have a remission than those with a gradual onset. Clearing of consciousness without proportionate improvement in the emotional attitude, with persistence of mannerisms and the appearance of short periods of excitement, point to deterioration. The mere presence of prolonged stupor does not necessarily indicate deterioration, as patients have remained in stupor from three to five years.

The fatal termination of the catatonic form usually occurs as the result of some intercurrent disease, of which tuberculosis is the most prominent. The special predispositions for this disease are shallow respiration, inactivity, and untidy habits.

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PARANOID FORMS

The paranoid forms of dementia præcox, which include *two groups of cases, are characterized by the great prominence and persistence of delusions and hallucinations for several years, in spite of progressing mental deterioration.* While there are many delusions and hallucinations in the hebephrenic and catatonic forms of dementia præcox, they are never very prominent and usually disappear as deterioration progresses. The cases grouped under this term are by many psychiatrists considered as forms of paranoia, a view which in our minds is untenable, because of the comparatively rapid appearance of mental deterioration, and also because of the occasional acute onset and the frequent occurrence of single catatonic symptoms, such as stuporous states, mannerisms, and neologisms.

The **First Group** of cases is characterized by many incoherent and ever changing delusions of persecution and grandeur, and a light grade of motor excitement, with retention of clear consciousness for a considerable time and rapid appearance of mental deterioration.

The onset of the disease is gradual, following a period of headache, malaise, and insomnia with a rapid loss of energy and often irritability. The patients act peculiarly, are unusually devout, seem depressed and anxious, and remain alone. In a short time they divulge a host of *delusions*, almost entirely of persecution; people are watching them, intriguing against them, they are not wanted at home, former friends are talking about them and trying to injure their reputation. These delusions

are changeable and soon become fantastic. The patients claim that some extreme punishment has been inflicted upon them, they have been shot down into the earth, have been transformed into spirits and must undergo all sorts of torture. Their intestines have been removed by enemies and are being replaced a little at a time; their own heads have been removed, their throats occluded and the blood no longer circulates. They are transformed into stones, their countenances completely altered, they cannot talk, eat, or walk like other men, etc. *Hallucinations*, especially of hearing, are very prominent during this stage; fellow-men jeer at them, call them bastards, threaten them, accuse them of awful crimes. Messages over the telephone are overheard mentioning that they are about to be sent to prison. Occasionally faces and forms are seen at night, or a crowd of men throwing stones at the window. Foul vapors may be thrown into their bedding. Patients during this time are anxious, agitated, restless, and emotional. They mistrust the surroundings, at times becoming aggressive and violent. In a paroxysm of fear they may even attempt suicide.

The *consciousness* usually remains unclouded. The emotional attitude before long loses the sad and anxious tinge, being replaced by a certain cheerfulness and exaltation. At the same time the delusions become less depressive and more expansive and fantastic. The patient in spite of persecution is happy and contented, extravagant and talkative, and boasts that he has been transformed into the Christ; a female is pregnant by the Holy Ghost; others will ascend to heaven, have lived many lives, have visited other worlds, and have journeyed over the whole universe. They have the talent of poets, can surpass famous war correspondents, have been nominated for

president, and have represented governments at foreign courts. These delusions may become most florid, foolish, and ridiculous. A patient will say that he is a star, that all light and darkness emanate from him; he possesses all knowledge, is an artist, the greatest inventor ever born, can create mountains, is endowed with all the attributes of God, can prophesy for coming ages, can talk to the people in Mars; indeed, is unlike anything that has ever existed.

Associated with these variegated and ever changing expansive delusions are delusions of persecution, almost as absurd and extreme, but expressed without corresponding emotion. While laughing they may complain that they have been deprived of their limbs, are wrecks of a dreadful struggle with enemies, having been pierced with thousands of bullets and been thrown into hell, where they were exposed to furnace flames. Suggestions for many of these delusions may arise from pictures on the wall or from reading.

These patients are usually talkative, expressing freely their many delusions. Some of them fill hundreds of sheets of paper trying to describe them. At first they are quite coherent, but later there is such a wealth of ideas loosely expressed that it is difficult to find any system in them. They wander aimlessly about from one delusion to another, showing frequent repetitions of the same ideas. Questions, however, are answered in a coherent and relevant manner. Later in the course of the disease the speech becomes more and more difficult of comprehension, because of the number of peculiar phrases and expressions to which they attach special significance and freely repeat. The writings likewise become more and more unintelligible.

The patients rarely possess *insight* into their condition. The consciousness becomes somewhat clouded later in the disease. Orientation as to place is least disturbed, but people are soon mistaken, often designated as celebrated personages, and all conception of time is lost. They recognize relatives, and can give a fairly clear statement as to where they are. They may recall some past knowledge, but they soon become unable to use it in reasoning. They cannot apply themselves to any mental work. The patients show an exaltation of the ego with heightened feelings, they are self-conscious, with an important bearing, and demand special attention. In emotional attitude they are almost always exalted, rarely depressed, although a few patients show restlessness, some irritability and occasionally some passion, often in connection with the menses. Many of the patients are able to perform some mechanical work, but need supervision because of their lack of application.

Physical Symptoms. — There is very little physical disturbance except the loss of weight and insomnia at the onset, with interference of nutrition.

The course is progressive without remissions. The signs of mental deterioration may appear within a few months, and are usually well marked by the end of two years.

The patients may for a long time retain clear consciousness and partial orientation, but the content of thought become thoroughly incoherent and there is a lack of energy and plan in their activity, which incapacitates them for all mental application. While active and somewhat interested in their environment, they still display a self-conscious serenity.

The **Second Group** of paranoid cases is characterized by hallucinations and fantastic delusions of persecution and of grandeur, which are mostly coherent, and are adhered

to for a number of years, when they disappear, leaving the patient in a state of moderate deterioration.

The first symptoms to appear are those of despondency with some self-accusation. The patients are troubled with thoughts of death and religious doubts; they are unusually devout, and seek religious advice. They fear that they have done wrong, have committed some crime, or are suffering the penalty of self-abuse. Coherent *delusions of persecution* develop gradually; people watch them, peculiar actions are noticed, acquaintances are less friendly, and children on the street jeer and laugh at them, perhaps mimicking their manners. Passers on the street who are entirely unknown to them turn and stare. In public places, in the cars and at the church, remarks are made which refer to them. They are libeled in newspapers. All these incidents have a hidden meaning, which, however, is fully understood by the patients. They are making their own observations and will be ready to expose the offenders and bring them to justice at the proper time. Affairs at home are unsatisfactory: the children are different, and the husband or wife is unfaithful.

Hallucinations, especially of hearing, rarely of sight, are prominent at this time, aiding in the elaboration of the delusions. Enemies take advantage of their confinement by standing below the window calling them all sorts of names, announcing that they are to be imprisoned, that they have committed murder, and are to be put to the rack. Voices are heard from the walls and from under the floor stating that they are wretches and outcasts of society. Very often the noises really heard, such as the blowing of whistles and the ringing of bells, are misinterpreted in accord with their delusions. They complain that the food contains poison which they can taste,

they suspect phosphorus in the tea and detect kerosene on the clothing.

They notice that their clothing is changed, buttons are missing, there is a rip in the coat and a pocket torn. Objects in their surroundings are changed in order to confuse them. Many somatic sensations, such as twitching of individual muscles, headache, specks before the eyes, pain about the heart, and cramp in the bowels, are all evidences of injuries caused by their enemies. The explanation of these somatic hallucinations often takes fantastic forms. An itching of the foot is sufficient evidence that a poisonous powder has been blown into their shoes, pain in the back indicates that they have been shot there while asleep, a frontal headache is the result of poisonous vapors, which are set free in the room at night in order to destroy their intellect. A tremor of the fingers is produced by means of electric currents sent through the air. Something is placed in their food to create sexual excitement.

The means employed by the persecutors for producing physical discomfort are varied. All known agencies are mentioned, as, magnetism, hypnotism, X-rays, telepathy, and electricity. These are accountable for the most various sensations in all parts of the body. They are compelled to act contrary to their own will and to say distasteful things. Organs of the body are removed and then replaced out of order, and the intestines are shrunken. It is quite characteristic for the patients to refer to these physical changes by some invented names, such as, ugly duberty, snicking, lobster cracking, etc. Others complain that their minds are influenced, their thoughts are gone, they have no control over their thoughts, which in spite of themselves are always evil. They attribute the origin

of such thoughts to others which are forced upon them in spite of themselves.

Ideas of *spirit-possession* are often a prominent feature. Here the enemy enters and takes possession of the body, causing the bones to crack and the head to rattle; obscene remarks proceed from the stomach; their ears are filled by all sorts of noises made by these spirit-possessors. They cause the testicles to fall and the throat to dry up.

Expansive delusions are also present in almost all cases. These are as variegated and fantastic as those of persecution. The patients have been awarded a crown for bravery and now rule over some country, possess beautiful dresses, and are betrothed to the king. They represent the Pope and are to travel all over the world. God daily appears to them and gives them a blessing. They have recently been entrusted with millions which they are to invest in mining. They have consummated immense trusts which they are to manage. All of the many delusions expressed by the patients are at first coherent, and show a tendency to some course of reasoning, but after a few years they become quite incoherent.

The *consciousness* during the development of these delusions, and for a long time afterward, perhaps years, remains clear. The patients are oriented. Thought is coherent, but centres about the delusions. The patients are able at first to offer some basis for the delusions and to refute objections, but later, as deterioration appears gradually in the course of several years, thought becomes cloudy and confused. Then the delusions are incoherent, contradictory, and unstable, and change rapidly. There is rarely insight into the disease. Many patients appreciate that they are not normal, but their defects and ailments are all regarded as the works of their persecutors.

The *emotional attitude* is at first characterized by depression and anxiety, but later this gives way to a certain amount of happiness and cheerfulness, with considerable egoism.

In *conduct* and *manners* the patients may at first be quite orderly; but later, in accord with their delusions, they are suspicious, journeying about to get rid of their enemies, applying to police for protection; or, taking the matter in their own hands, they attack supposed persecutors or attempt to expose them through the papers. Others contrive a sort of armor for themselves, place metals in their shoes or wires in their clothing to divert the electrical currents. In accord with expansive delusions they may decorate themselves in fantastic costumes, adorn themselves with badges, assume a superior air, and use high-flown language.

There are no definite **physical symptoms**.

The *course* is slowly progressive to mental deterioration. However, one can discern certain stages. At first there is a change of disposition, then a prominence of delusions of persecution, later the appearance of the delusions of grandeur, indicating the onset of deterioration, and finally the fading away and entire collapse of the delusions. Remissions have occurred in a few cases.

The *outcome* is always deterioration. The delusions in the course of several years cease to further develop and gradually fade away, leaving the patient with a certain degree of mental weakness, seen in lack of judgment, and absence of mental energy. Ideation is scanty. In conversation the patients are incoherent and unintelligible, with occasional references to former delusions. In their actions they show many peculiarities, and a lack of appreciation of and conformity to external relations. They

are usually capable of employment, and sometimes are even industrious, the former "Pope" becoming a trusted farm-hand, and the "queen" a good seamstress. Finally they reach a stage of apathetic deterioration, when they are incapable of any employment.

Diagnosis of Dementia Præcox. — *Acquired neurasthenia* is distinguished from the hebephrenic form by the fact that the hypochondriacal ideas are not silly, the judgment is retained, there is no evidence of deterioration, the patients are not stupid, and finally they improve with treatment. The presence of hallucinations is a positive sign of dementia præcox.

The disease is distinguished from *dementia paralytica* by the early age of onset (fifteen to thirty), less rapid development of deterioration, especially in memory which in dementia paralytica is both rapid and profound, less loss of judgment, the retention of apprehension contrasted to the great stupidity and indifference of the paretic. Mannerisms, mutism, negativism, and stereotypy may appear in dementia paralytica, but they are unstable and transitory. The contrariness and obstinacy of the paretic are usually unaccompanied by other signs of negativism, — refusal of food and mutism. If mutism and refusal of food are present, they are less obstinately carried out and are accompanied by a more marked clouding of consciousness. The excitement in dementia paralytica, accompanied by stereotyped movements, impulsive actions, etc., is distinguished from the catatonic excitement by the great disturbance of apprehension, attention, and thought. Finally the presence of physical signs speaks for dementia paralytica.

It is differentiated from *amentia* by the absence, except

in a very few cases, of the characteristic exciting cause, namely, nervous exhaustion; by the gradual onset, the uniform emotional attitude, contrasted with the rapidly changing emotional state in amentia, and by the less marked clouding of consciousness; the patients are at least partially oriented, while in amentia there is complete disorientation. In amentia the patients do maintain attention to the surroundings, while in dementia præcox they are sluggish or indifferent in apprehending. In amentia the patients are at all times quite unable to carry on a conversation, and talk incoherently of their past experiences. In dementia præcox, while at times they are monosyllabic and entirely incoherent and silly, they occasionally surprise one by the recitation of knowledge of their earlier days.

The greatest difficulty arises in distinguishing the *depressive form of manic-depressive insanity* from the period of depression which one meets at the onset of the hebephrenic and the catatonic forms. The early appearance of many hallucinations speaks for dementia præcox, as well as an emotional attitude which does not correspond to the depressive character of the delusions. The patients remain quite indifferent during the visit or at the death of a relative, while in manic-depressive depression the feelings are apt to be intensified. The apparently similar conditions of negativism of the catatonic and of retardation of the manic-depressive are at times distinguished only with difficulty. In the former there is uniform, rigid, and stubborn resistance to every passive movement, and if pain is produced by pricking, there is a simple withdrawal without effort at defence; while in retardation the passive movements are permitted and painful contacts are resisted. Voluntary movements in the catatonic stupor

are rare, but when executed are carried out without delay, and at times even rapidly, except when these movements are made by request, then there is always delay. In retardation all voluntary movements are carried out very slowly. There is sometimes a certain resistance due to apprehension and fear, but this is active.

The excitement of the catatonic is to be distinguished from the excitement of the *maniacal forms of manic-depressive insanity*. In the catatonic form there is greater disturbance of conduct, the content of speech and emotional attitude, while in the maniac there is greater disturbance of apprehension, orientation, and thought. In the catatonic excitement the clouding of consciousness is less marked than in the maniacal excitement, the patients being partially oriented, even in the greatest excitement, while in the extreme maniacal state there is complete disorientation. On the other hand the speech of the catatonic who has less motor excitement is more senseless and difficult to follow than that of the maniac who has extreme motor excitement. The catatonic speech abounds in verbigerations and stereotyped expressions and is free of comments upon the surroundings, while the speech of the maniac presents the characteristic flight of ideas, and is centred upon or drawn largely from the immediate surroundings. In this condition attention is readily distracted by the surroundings, while the attention of the catatonic cannot be. The attitude of the catatonic is silly, childish, exalted, or irritable. The movements of the catatonic are purposeless, frequently repeated, in contrast to the pressure of activity of the maniac in whom the movements are always purposeful with some relation to the surroundings, dependent upon ideas, impressions, and emotions, and always appearing in new forms. The increased activity of the catatonic

is more apt to be limited to one corner of the room or of the bed, while that of the maniac is limited only by his confines.

It is sometimes necessary to differentiate catatonic excitement with epileptiform or hysteroid attacks from *hysterical states*. In the latter one is usually able to detect slyness and method in the contrariness and purpose in the actions, while in the catatonic there is evident senselessness and lack of purpose in movements, and the emotional attitude exhibits more stupidity. Finally, hallucinations and delusions are more exaggerated and prominent in the catatonic.

The distinction between the paranoid forms of dementia præcox and pure *paranoia* depends upon the lack of system, the rapid development of fantastic delusions commencing with prominent hallucinations; while in *paranoia* the onset is very gradual, sometimes extending over one year with only a few hallucinations. The delusions in dementia præcox are extremely fantastic, changing beyond all reason, with an absence of system and a failure to harmonize them with events of their past life; while in *paranoia* the delusions are largely confined to morbid interpretations of real events, are woven together into a coherent whole, gradually becoming extended to include even events of recent date, and contradictions and objections are apprehended and explained. In emotional attitude the dementia præcox patient soon shows clear and marked changes;—depression or silly elation, sexual excitement and remissions; while in *paranoia* the emotional attitude is uniformly natural, the demeanor is almost normal, and the patients are capable of occupation for a long time. In *paranoia* there may be partial remissions when the patients react less actively to the delusions, but the delusions never disappear.

In the absence of history of the early life and of the psychosis, *imbecility* may be confused with the end stages of dementia præcox. The differentiation then depends upon the presence of transitory periods of excitement with impulsiveness, and the occasional expressions which give evidence of earlier school knowledge.

The dreamy states of *epileptic insanity* are distinguished from the stupor of the catatonic form by the anxious resistance contrasted to negativism, and the presence of ecstatic attitude and a more profound disturbance of consciousness. The actions are prompted by feelings, while in the catatonic they are purposeless and stereotyped.

The **prognosis** of dementia præcox is unfavorable, as the vast majority of cases end in mental deterioration. As already stated, this varies in the different forms; thirteen per cent. of the catatonics and eight per cent. of the hebephrenics recover, and none of the paranoid form. Even the few cases which seem to have recovered may suffer from another attack later in life, which leads to deterioration. The degree to which the mental impairment advances is sufficiently indicated in the discussion of the course of the disease in the different forms.

Treatment. — Our meagre knowledge of the causes of the disease restricts the indications for treatment to the individual symptoms. Almost all cases, and especially those with the acute and sub-acute onset, demand hospital care in order to prevent injuries to self and others, and to establish a suitable symptomatic treatment. Exception is made for the few cases of the hebephrenic form with insidious onset. These patients may be cared for at home with safety for a considerable time. At the onset of the acute and subacute cases bed treatment should be prescribed for all cases.

Insomnia at the onset may be controlled by lukewarm baths or sparing doses of a hypnotic, of which sulphonal or trional in ten to fifteen grain doses are the best. Conditions of excitement are best treated by prolonged warm baths (see p. 89). The extreme excitement sometimes encountered, especially in the catatonic form, may not yield to the simple warm bath, in which event one can often successfully employ cold packs (see p. 246), at first preceded by trional, sulphonal, or hyoscine hydrobromate $\frac{1}{200} - \frac{1}{50}$ gr. These, however, are not applied without some risk, and frequently require the supervision of a physician. If these measures fail to allay the excitement, nothing remains but confinement in a padded room with careful watching. Simple persuasion on the part of a well-trained, tactful nurse or physician often succeeds in bringing about quiet, at least temporarily, but this requires great patience, a kindly disposition, and good self-control.

In the condition of depression at the onset of the disease the patient should be removed from all sources of irritation. Friendly encouragement, with change of environment from time to time, or simple occupation planned to distract the attention from self, are important features in the psychical treatment. The condition of nutrition as well as the digestive organs need careful attention. This is especially important in the stuporous states of the catatonic, where feeding by nasal or stomach tube is necessary to maintain nutrition. In this event eggs, hypophosphites or alcohol should be added to the liquid nourishment.

After the subsidence of the acute symptoms, provided the patients are not untidy, are not subject to periods of excitement, and are able to take sufficient nourishment, it is desirable for them to return to their homes. In the case

of women one has to consider the possibility of pregnancy. These patients may reside comfortably at home for many years, but finally, as a result of increasing deterioration, they drift into almshouses or back into insane hospitals. Finally it is most essential that the partially demented persons should be engaged in some regular employment, preferably with outdoor environment. This means often inhibits further development of deterioration.

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DEMENTIA PARALYTICA

DEMENTIA PARALYTICA, or general paresis of the insane, is a chronic progressive psychosis of middle age, characterized *clinically by progressive mental deterioration with symptoms of excitation of the central nervous system, leading to absolute dementia and paralysis, and pathologically by a fairly definite series of organic changes in the brain and spinal cord, probably the result of autointoxication.*

Etiology. — The disease is unknown among the uncivilized nations and is most prevalent in western Europe and North America. It seems to be a disease of modern civilization. Not many years ago the negroes were free from the disease; at the present time its percentage among them almost reaches that of the whites. Early in the past century the disease represented about five per cent. of the admissions to large foreign city insane institutions which now admit twenty to thirty per cent. of paretics. By far the greatest number of cases appear in large cities and manufacturing centres, while in farming districts the disease is very rare. It is from four to five times more prevalent among men than women, and is less prevalent among women of high standing. This disproportion is gradually decreasing. Women suffer more often from the depressive form and least often from the agitated form. The disease is more often one of middle life, rarely appearing before twenty-five or after fifty-five years of age. It occurs most often between thirty-five and forty years. The onset is later in women than in men.

Recently a number of cases have been reported between the ages of ten to twenty years. In these cases of dementia paralytica, syphilis and alcoholism were frequently found in the parents. Alzheimer¹ has recorded syphilis in seventy per cent. of these cases. The juvenile form is usually that of simple deterioration of long standing, with great prevalence of paralytic attacks.

The disease is more frequent among the unmarried, especially prostitutes; and married women are usually childless. Occasionally the disease occurs in man and wife; sometimes tabes is present in one and dementia paralytica in the other. The male patients are drawn from all classes and from all professions and trades. Defective heredity is found in fifty per cent. of cases.

Among the causes of the disease *syphilis* is the most prominent. Its prevalence varies, according to various authors, from eleven to seventy-seven per cent. According to the experience of Gudden in the Charité and Kraepelin at Heidelberg a clear history of syphilis cannot be established in more than thirty-four per cent. of cases.² The period between the syphilitic disease and the onset of dementia paralytica varies between two and twenty years, but more often occurs between ten and twenty years later. Other causes are alcoholic excesses, insolation, head injury, and mental shock, of which alcohol is by far the most prominent. Another important factor is the restless over-active life, coincident with the struggle for existence in large cities, and excesses in eating and drinking.

In view of the uniform course of the disease leading to dementia and physical paralysis, accompanied by a general and extensive destructive process involving not only

¹ Alzheimer, Allg. Zeitschr. f. Psy., Bd. 52, S. 3.

² Berkely at Baltimore offers the same percentage.

the central nervous system, but also the general vascular system, and to a limited extent the internal organs of the body, it seems probable that we have to do with an autointoxication process. We have the symptoms of excitation of the neurones; their rapid destruction, gradual sclerosis, the occasional exacerbations of the symptoms, and the possibility of a regeneration of the neurones, all of which can be reproduced by experimentation upon test animals with any toxic material which causes a destruction of the neurones. These anatomical facts are wholly in accord with the clinical observations, namely: the gradual onset, great clouding of consciousness, rapid or gradual deterioration and marked remissions, some of which almost approach complete recovery. While the involvement of the blood vessels and the broad extent of the lesion indicates that the toxin reaches the neurone by means of the blood vessels, yet the disease of the blood vessels stands in no definite relation to the anatomical or clinical picture. The involvement of the kidneys, heart, and the entire vascular system, the fragility of the bones, the alternate loss and increase of the body weight, ending at last in great emaciation, all speak for the profound disturbance of nutrition.

The sudden and high elevation of temperature, as well as the prolonged subnormal temperature, and finally the paralytic attacks, judging from our experience in eclampsia, myxedema and uremia, can best be explained by intoxication arising from disturbance of metabolism. The high grade destruction of the neurones, which has been demonstrated by Nissl in some cases, and which has been regarded by Lissauer as the cause of the paralytic attacks, would speak for the sudden overwhelming of cortical neurones with a toxin. If one accepts the view

that the toxin circulates in the blood, then the difference in the intensity of the destruction of the neurones and the paralytic attacks indicative of focal lesions in the cortex can be explained by the difference in the concentration of the toxin and a varying susceptibility of the cells in the different areas.

The character of the toxin and the sources from which it arises are questions still in doubt. It seems probable that it arises from a profound *disturbance of metabolism*, in the production of which in a considerable number of cases *syphilitic infection is the most prominent factor*. Moebius and others go so far as to hold that both tabes and dementia paralytica are late manifestations of syphilis, a view which seems to be borne out by the experiments upon nine paretics cited by Krafft-Ebing. It will be impossible to accept a view that syphilis is the cause of dementia paralytica until we can establish a history of syphilis in more than thirty-four per cent. of cases. Strumpell draws an analogy from the symptoms of paralysis in diphtheria, claiming that dementia results from the effects of a toxin which develops in consequence of the presence of the syphilitic virus during the early stages of syphilis. It is possible that we may be able later to distinguish a difference in the dementia paralytica following syphilis and that following other causes. Thus far only a few cases can be selected which show a gummatous infiltration of the walls of the vessels of the brain.

Late manifestations of syphilis arise within a comparatively short time after primary symptoms, while the dementia characteristic of dementia paralytica does not occur in the greatest number of cases until after ten or more years have elapsed. For this reason dementia paralytica cannot be regarded as a simple syphilitic disease.

On the other hand in a considerable number of cases *syphilis in some way is in a position to produce profound changes of metabolism from which develops a toxin, which is the direct cause of the pathological changes characteristic of dementia paralytica*. Such a view obviates the difficulties in making a satisfactory explanation of the relationship between syphilis and dementia paralytica. Other etiological factors, as alcohol, lead, and excesses, would bear a similar causal relation to this disturbance of metabolism.

Pathological Anatomy. — The pathological changes here enumerated can as a whole be regarded as pathognomic of this disease. Hyperostoses and exostoses of the cranium, with or without thickening of the tables, are occasionally present. The dura is usually adherent to the calvarium in places. Pachymeningitis, interna and hematoma are common. The false membrane is almost always situated on the vertex over the frontal, parietal, or temporal lobes, and is of varying thickness, from a thin, almost imperceptible rust-colored membrane, to a thick, firm, white membrane, with small or large, fresh or partially absorbed, clots.

The pia is thickened, whitish, and translucent along the vessels, and especially over the vertex of the frontal and parietal lobes and the first three temporal convolutions. The internal surfaces of the frontal lobes are usually adherent. The leptomeningitis is always more intense over the poles of the frontal lobes. The Pacchionian granulations are usually increased in size. In thirty-three per cent. of cases the pia over the atrophied convolutions and broadened fissures is edematous. The convolutions are atrophied, especially in the frontal lobes, and to a less extent in the central convolutions. In these portions the cortex is narrow and often

strongly adherent to the pia, tearing upon its removal, and the corona radialis is shrunken. In the other portions of the cortex, and in the basal ganglia, the atrophy is much less marked. The ventricles are dilated, and the choroid plexus contains many cysts. The ependyma, especially of the fourth ventricle, and the inner walls of the lateral ventricles, is covered with granulations, which give the usual glistening surfaces a frosted appearance. These granulations are composed of an increase of neuroglia, which in many cases has undergone hyaline degeneration. The weight of the brain is regularly below the normal, and in some cases of long duration may be reduced to nine hundred grams. The average weight is eleven hundred and sixty to thirteen hundred grams.

Microscopically,¹ cytological changes of varying intensity are found scattered throughout the cortex. These changes in the neurones may be divided into the *acute* and the *chronic* corresponding to the character of the clinical symptoms.

The *acute* change, as observed when studied by the Nissl method, consists of a swelling of the body of the cell and its nucleus, and staining of the achromatic substance, so that the axis cylinder process can be traced for some distance from the cell body. This change is represented by Figure 2, Plate 4, which should be compared with Figure 1, which represents a normal cell. Where the process has been more intense, corresponding to the more severe and rapid course of the disease, the chromatic substance breaks up completely, the nucleus swells out, and the whole cell appears very much as if it had been perforated with fine

¹ Binswanger, Die Pathologische Histologie der Grosshirnrinden-Erkrankungen bei der allgemeinen progressiven Paralyse. 1893. Nissl. Archiv f. Psy., Bd. 28, S. 989. Heilbronner, Allgem. Zeitschr. f. Psy., Bd. 53, S. 172.



FIG. 1

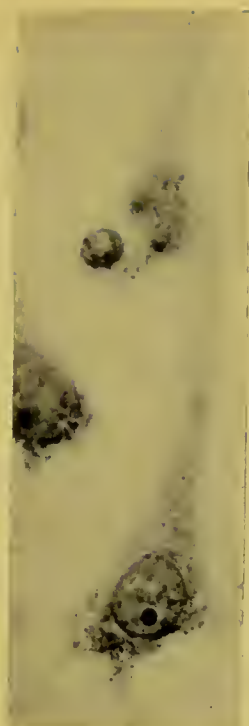


FIG. 2

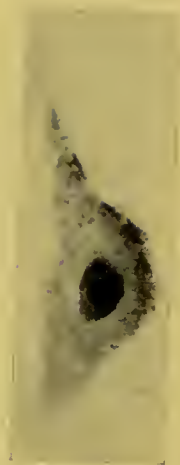


FIG. 3

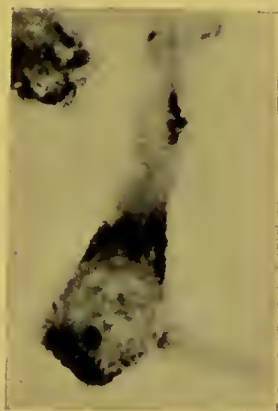


FIG. 4



FIG. 5

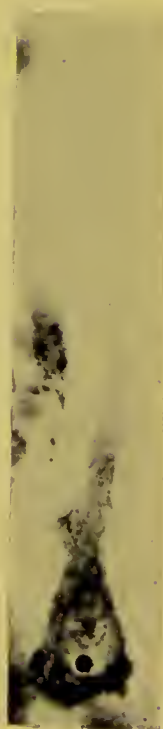


FIG. 6

PLATE 4

Fig. 1—Normal large pyramidal cell. Fig. 2—Acute alteration in dementia paralytica. Fig. 3—Grave alteration in dementia paralytica. Fig. 4—Cell shrinkage in dementia paralytica. Fig. 5—Chronic cell change in dementia paralytica. Fig. 6—Chronic change with superimposed acute change in dementia paralytica.



shot as seen in Figure 3. This acute change uniformly involves the neurones of the entire cortex. The most profound type of the acute change, which, however, is encountered also in other destructive lesions, consists of an immediate dissolution of the cell body with a shrinkage of the nucleus which loses its membrane and its characteristic structure, becoming round and staining a uniform violet blue. The nucleus finally remains as a small structureless clump, with or without scanty residuals of the cell body. This process does not permit of restitution, which seems possible in the other processes of the acute type.

Another change which apparently belongs among the chronic changes, is called by Nissl "cell shrinkage," (Figure 4). It consists in a fading away and a shrinkage of the chromatic portions. Some portions, however, remain uninvolved for a very long time, such as the nuclear cap and the basal bodies. The nucleus is also involved; its membrane partially or entirely disappears, so that the nucleus upon superficial observation may seem to be increased in size. The achromatic substance is affected only very slightly; however, the axis cylinder may be recognized and traced. Apparently, cell shrinkage should be regarded as a severe and irreparable change.

The *chronic* change differs from the acute in that not all the neurones are equally involved. In some cases the normal and the abnormal cells may be found lying along side of each other. There is a gradual sclerosis of the neurone, the cell body shrinking and becoming irregular in outline, especially about the base; the nucleus loses its rotundity, is triangular or oblong, and the membrane folds upon itself, producing sharply stained bands. The chromatic and achromatic portions of the cell lose their characteristic structure and stain profusely. The nucleus appears at the

periphery of the cell. In the darkly stained portions one often sees fine, clearly stained bands. The chronic change is represented in Figure 5. The smaller pyramidal cells in their shrinkage take on a star-like formation. It often happens that cells with this chronic change give evidence of a superimposed acute process, as seen in Figure 6. The difference in the intensity of the process in the different areas is probably due to difference in the power of resistance of the neurones.

As yet no relationship has been established between the clinical symptoms and the pathological changes in the different areas, except where there are speech disturbances, word deafness and convulsions, in which cases there is uniformly found involvement of the temporal, parietal, and central convolutions. The nerve fibres of the cortex and the corona radialis present anatomical changes which bear a definite relationship to the extent of the process in the nerve cells. Where the clinical course has been prolonged and the neurones are much degenerated there remain but a very few normal fibres. Similar destruction of the nerve fibres may be found in senile dementia and epileptic insanity, but it is not as far advanced as in dementia paralytica.

As the result of the degeneration of the nerve cells and their processes, there is an atrophy of the cortex, which in extreme cases may shrink to one-half its normal width. This degeneration may be more marked about the vessels. The remaining cells are no longer arranged uniformly, but are turned in all directions, either closely pressed together, as seen in Figure 3, Plate 5, or surrounded by areas composed only of sclerotic tissue and vessels with thickened walls. Figure 3 should be compared with the normal cortex as represented in Figure 2. *It is this anatomical condition which is*

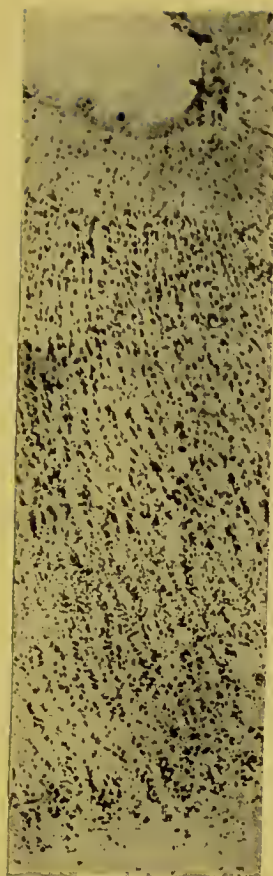


FIG. 1



FIG. 2



FIG. 3



FIG. 4



FIG. 5

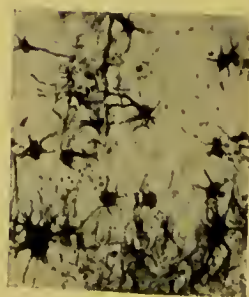


FIG. 6

PLATE 5

Fig. 1—Cerebral cortex in idiocy. Fig. 2—Normal cerebral cortex. Fig. 3—Cerebral cortex in dementia paralytica. Fig. 4—Glia in normal cerebral cortex. Fig. 5—Glia with presence of spider cells in cortex in dementia paralytica. Fig. 6—Showing the relation of spider cells with vessel walls in deep layers of cerebral cortex in dementia paralytica.



most characteristic of dementia paralytica. The cell changes already described may be found in other conditions, but in none do all the elements of the cortex suffer to such a profound degree as here. In senile dementia, idiocy, and even in dementia præcox, many cells and fibres are destroyed, but the general conformation of the remaining elements is undisturbed. This distortion with the presence of scar tissue is present to a recognizable extent in dementia paralytica, even when the process is not far advanced.

In the areas of degeneration there may be a considerable increase in the neuroglia tissue, in which the spider cells take a prominent part, appearing especially in the deeper cell layers of the cortex and about the blood vessels. This great increase of spider cells may be seen in Figures 5 and 6, Plate 5, in comparison with Figure 4, which represents the normal amount of neuroglia present in the cortex. The increase in neuroglia does not necessarily correspond to the destruction of the nerve cells, as often normal nerve cells are surrounded by considerable neuroglia, and, on the other hand, in the same areas all the nerve cells may have disappeared, without any appreciable increase of the neuroglia. Vascular changes in the cortex form a prominent part in the microscopical picture. The vessels are increased in number, their walls thickened and infiltrated with many round cells. Some of the vessels are dilated, a few are totally obliterated, and others show small aneurisms.

The basal ganglia, central gray matter, and cerebellum also present degeneration of the neurones. Weigert has demonstrated an increase of neuroglia in the granular layer of the cerebellum, with a destruction of the Purkinje cells and their processes. The cranial nerve nuclei of the medulla show similar changes to those seen in the cortical cells.

Gross brain lesions, such as we should expect to find where there have been paralytic attacks, are entirely lacking. Even cases of apoplectiform attacks, followed by hemiplegia or aphasia, lasting for some time, present no lesions.

The spinal cord¹ is involved to a greater or less extent in almost all cases, the most important anatomical changes being degeneration of the fibres in the posterior and lateral columns, which lesions are usually combined. Fuestner found them alone only in twelve to nineteen per cent. of cases. The two sides are unevenly affected. Degenerative changes are occasionally found in the peripheral nerves. In the internal organs vascular changes are so frequently found that they seem to bear a definite relationship to the disease process. Of these atheroma of the aorta and arteritis of the vessels of the liver and kidney are the most prominent.

Symptomatology.—From the onset there is apparent an increasing difficulty of *apprehension* of external impressions. The patients are distractible, inattentive, and unable to grasp clearly and sharply the character of the environment. Later they mistake persons and objects, fail to recognize former well-known objects and circumstances, and overlook important matters in daily life. The attention is maintained only with effort. Long sentences are followed only with difficulty, and bits of wit are lost upon them. Business obligations are poorly performed.

In this way the consciousness becomes clouded. The dreamy conduct of the patients often leads to the belief that they are in a constant state of intoxication. A con-

¹ Westphal, Allgemeine zeitschr. f. Psy., Bd. 20-21. Westphal, Archiv f. Psy., H. I, Bd. 12. Westphal, Virchow's Archiv, Bd. 39. Fuestner, Archiv f. Psy., Bd. 24. I.

dition of mental torpor is quite characteristic of the early stages. These patients may answer questions quite correctly and upon superficial examination seem to conduct themselves in accord with their environment, but at the same time they neither know where they are, with whom they are speaking, nor the significance of what is taking place about them. They fail to recognize the season or the time of day by the means close at hand. A patient may say that it is summer while looking out upon a snow-covered field and with his hands resting upon a hot radiator. This condition later reaches one of absolute disorientation, when the patients cannot perceive or elaborate any external impressions.

Hallucinations play an unimportant part. In the greater number of cases none appear, but on the other hand a few may present hallucinations of all the senses for a short time. Hallucinations of sight are usual in patients with optic atrophy.

The disturbance of apprehension is partially responsible for the profound *defect of memory*, which is one of the most prominent of the mental symptoms. At first, the memory becomes defective for recent events. The patients cannot tell what they did several days previously, or where they walked the evening before. If asked to figure five times fifteen, they reckon correctly five times ten, and five times five, but when they attempt to add the results, they have forgotten the first. The memory is especially defective in the time element, the patients failing to record the time of the occurrence of events. They cannot inform you when the mail arrived, when they had breakfast, or how long they have been in the institution. Some of the patients live so completely in the present that they may ask several times a day where they are, how long they have

been in the institution, or if they have ever seen you before. This defect is often keenly appreciated by the patients, who complain of and sometimes devise means for correcting it.

The early events of life are comparatively well retained for a long time, the patients being able to tell of their occupation, the former place of residence, and the childhood. This remote memory also suffers late in the disease, and here also the time element is the first to be affected. Dates of marriage, birth of children, and important events are completely forgotten. Finally they are unable to recall the names of the father, the children, or the place of birth. A married woman often forgets her maiden name. Lapses of memory, when periods are completely forgotten, occur most frequently following epileptiform or apoplectiform seizures.

The *store of ideas* undergoes a progressive impoverishment, which finally leads to a complete destruction of all the mental possessions. The rapidity of this process varies with the intensity of the disease and the power of resistance, as well as the intelligence of the individual. The more intelligent resist longer, and the most frequented paths of thought are retained longest. As memory fails, its place in the intellectual life is often made good by the imagination. As real reminiscences disappear, invention runs riot. Whatever enters the mind is related as genuine; stories, or what may have been said by a fellow-patient, are now a part of their own experience. The patient was in a terrible railroad accident last night, in which a dozen were killed, and he escaped only by chance; he led the troops at San Juan; yesterday he had a conference with the British Ambassador; invented an airship in which he has travelled to China. He captured a hundred

beautiful women from a Turkish harem, invented a new and inexpensive motive power for the automobile, which is now bringing him millions of money. These dream-like *fabrications* can lead to the greatest absurdities following suggestions from the listener. Of these, the patient may at first be a little doubtful, but at the next visit all doubt will have disappeared.

It is not unusual at the onset for the patients to express some *insight* into their mental disease, complaining of their failing memory, the irritability, and the increasing difficulty of thought. Later, with increasing deterioration, all genuine insight disappears. The patients, on the contrary, exhibit a feeling of well being; they claim that they never felt stronger or enjoyed better mental vigor. At times during the course of the disease the patients may make various hypochondriacal complaints, but even then they fail to recognize the real symptoms of the disease.

Impairment of judgment is another very prominent symptom. It may be the first to call attention to the disease. Objects of former criticism now fail to arouse comment. The former conservative principles which have made their business life a success are lost sight of, and new plans lack unity and system. Weighty obstacles are overlooked and senseless schemes produced with perfect serenity. Business and social standards are completely disregarded. Their conceptions have no bearing upon the environment, but centre almost entirely about themselves, so that they come to live in a sort of dream world, in which everything depends upon their own ideas and wishes. The *formation of delusions*, which in part arises as the result of this defect of judgment, varies very much in different cases. In some there are but few delusions, but in most the delusions form a prominent feature in the first

stage of the disease. These delusions are transitory, unstable, without system, and show confusion and incoherence. They are characterized by vagaries, senselessness, numerous variations and contradictions.

The *emotional life* shows a profound disturbance. At first there is usually irritability. The patients are easily disturbed at home and work, are sullen, peevish, and apt to show considerable passion at trifling annoyance, in which they completely lose control of themselves. On the other hand, there may be noticed an unusual insensibility to the claims of others, indicative of the deterioration of the finer feelings; the patients fail to show sympathy at the suffering of their children, are indifferent to immoral surroundings, and do not take the wonted pleasure in reading or professional pursuits.

The emotional attitude is much in accord with the character of the delusions; it is elated with expansive or dejected with depressing delusions. Later the emotional tone becomes very unstable, and there are frequent and abrupt changes. In the midst of laughter they may break out in a storm of tears, or misery may give way to silly happiness. These changes of emotion may be brought about by simple suggestions or by raising or lowering the tone of voice, or by the expression of the face. A patient lying on the floor, complaining that he had lost all his organs, that he had no blood and could not breathe, when tickled in the ribs and asked how he felt, exclaimed, beginning to laugh, "I am feeling fine; come and see me again." In the demented forms of the disease, where there may be only a few delusions, there is no especial tone to the emotions, the patients being in a condition of simple joy or irritable dissatisfaction most of the time.

There is a profound change of *disposition*; the former

stability and independence of action gives way to progressive weakness of the will power. The patients become very tractable, but occasionally may be excessively stubborn. Early in the disease they are led to indulge in all sorts of excesses and sometimes persuaded to deed away property. When angered and determined to commit an assault upon some one, they may be easily influenced to desist by a simple suggestion. A patient about to leap from a third-story window because of fear, was readily prevented by the suggestion that it would be better to go down and jump up. Any impulse that arises may be acted upon without reference to the extreme difficulty of its accomplishment. One patient is said to have stepped out from the second-story window for the purpose of picking up a cigar stump.

In *conduct* the patients show a disregard for the demands of custom and law, are unconstrained, and often commit grave offences into which they have no insight. As a reason for such conduct, they often say that they acted so because it happened to come into their minds. The social restraints normally imposed upon one by the environment never interfere with the carrying out of the patients' purposes. They are quite reckless of personal safety, and occasionally injure themselves severely in their foolhardy actions. In conditions of great clouding of consciousness or in advanced deterioration there are sometimes present some symptoms characteristic of the catatonic form of dementia præcox, such as catalepsy, verbigeration, negativism, and stereotyped movements, but these are transitory and change more readily and frequently than in that condition.

Physical Symptoms. — The physical signs of the disease, in both the motor and the sensory fields, are as extensive

and profound as the psychical. These may appear either before the mental symptoms or not until dementia has become well advanced; usually they are coincident.

Of the *sensory* symptoms headache is often the first to appear, accompanied by a feeling of pressure as if the head were being held in a vice, together with ringing in the ears and dizziness. The special senses at first give evidence of excitation, which later gives way to a state of insensibility, corresponding closely in degree to the stage of deterioration. Some patients have difficulty in the recognition and localization of objects held before them, which by Fuerstner is ascribed to involvement of the occipital cortex. Hemianopsia occasionally follows apoplectiform or epileptiform attacks. Optic atrophy is found in five to twelve per cent. of the cases. The disturbance of the cutaneous sensations is quite often prominent; at first there are all sorts of indefinite pains, later analgesia appears, which may be so pronounced that needles can be thrust entirely through the limb without pain. Finally, the patients may pull out their hair, disturb an open wound, draw out their toe-nails, and persist in mangling their own flesh.

Of the *motor* symptoms paralytic attacks, either epileptiform or apoplectiform, are very important, occurring in about sixty per cent. of cases.

The *epileptiform* attacks may be very light, consisting only of a transitory dizziness with perhaps an inability to speak. An attack of this sort is often the first symptom to call attention to the disease. In the severer forms, which may be either of the Jacksonian or of the essential type, confusion or stupidity may usher in the attacks, which begin with a fall to the floor, loss of consciousness, and convulsive movements usually in one limb extending gradually to the others. It is noticeable in many cases

that the movements are synchronous with the pulse. Convulsive movements may be confined to a single group of muscles or to one limb. The duration of the attack is from one to several hours, but sometimes clonic movements of varying intensity continue in one or more limbs for days. A condition similar to status epilepticus, where there are from twenty to one hundred attacks daily, may persist for days, often terminating in death. The attacks pass off slowly, sometimes leaving the patient in a condition of confusion. In the earlier stages of the psychosis, these attacks leave the patients in a condition of more profound deterioration, and sometimes with evidences of transient aphasia, hemiplegia, or hemianopsia.

Apoplectiform attacks often occur, and may be the first important sign of the disease. In these attacks there is the usual loss of consciousness and stertorous breathing, with occasional high elevation of temperature, accompanied by hemiplegia and aphasia. In some attacks there is no loss of consciousness, simply the sudden appearance of paralysis. Transitory sensory disturbances can similarly appear as paræsthesias, anæsthesias, or defects of vision. It is a distinguishing feature of these apoplectiform attacks that the paralysis disappears quickly and without evident residuals.

Other somewhat similar attacks occurring in the course of the disease are those in which there is a sudden development of extreme confusion, with motor restlessness, difficult speech, flushing of the face and body, distention of the veins of the face, vomiting, and rise of temperature which may be excessive (one hundred to one hundred and seven degrees). These last from a few hours to a few days and pass away quickly, leaving the patient in his former state.

The frequency of the apoplectiform and epileptiform attacks depends somewhat upon the character of the treat-

ment. They may result from emotional disturbances, excesses in eating, and especially an accumulation of feces in the rectum. Cases with prolonged rest in bed are not as apt to develop these attacks. They are also most frequent in the demented form.

Motor disturbances of the eye include occasional transitory paralysis of single muscles, also complete ophthalmoplegia, single or double ptosis, and nystagmus. Differences of the pupil occur in about fifty-seven per cent. of the cases, immobile pupils in about thirty-four per cent., and sluggish reaction to light in thirty-five and five-tenths per cent.

The muscles of the face lose their tone, the naso-labial fold and other lines of expression disappear, and the countenance becomes expressionless. This washed out, expressionless character of the countenance is well represented by the group of three paretics seen in Plate 6. Lack of tone in the muscular system is also seen in their slouching and inelastic attitude. There is also a loss of control of these muscles, giving rise to incoördination noticeable mostly when the mouth or eyes are forcibly opened. A fine tremor of these muscles is almost always present. The voice loses its characteristic tone, becoming monotonous. Changes in the voice often are the first physical signs to appear among singers. Tremor of the tongue, which may be either finely fibrillary or coarse and retractive, is a constant sign. In advanced cases there is often a rolling of the tongue about the mouth as if it were a quid. This in some cases has been explained by the presence of areas of anæsthesia of the mucous membrane. Gritting of the teeth is occasionally associated with these movements of the tongue or may be present alone.

Disturbances of *speech* are among the most characteristic symptoms. They are of two kinds, aphasia and



PLATE 6. Group of paretics.



defective articulation. *Aphasia* appears only after paralytic attacks and is transitory. Paraphasia, which may appear at the same time, is more persistent and sometimes lasts several months. Word blindness and word deafness are rarely encountered. There is occasionally agrammatism, as seen in the misuse of infinitives and omission of conjunctions. There may be an elision of syllables, as in the use of *elexterity* for *electricity*, or a reduplication of syllables, as *electricicity*, and finally there may be tendency to repeat syllables forming a genuine word clonus, as *Massachusetts-etts-etts-etts*.

The disturbance of *articulation* may appear after paralytic attacks, but more often occurs independently of them. As the result of difficulty in movement of the lips and tongue, syllables are poorly united, making the speech indistinct. Gliding over the syllables gives rise to a characteristic slurring. Frequent pauses are made between syllables or words, and when accompanied by a fall in the tone of voice produce a scanning speech. These difficulties lead to the substitution of words or syllables similar in sound but more easily pronounced, or the elision of difficult syllables. Many of the patients, in their efforts to overcome these difficulties, stutter and produce an explosive speech. The patients often appreciate the difficulties of speech, but are ready to explain that these are due to dryness of the mouth or loss of teeth. Speech disturbances are more readily observed in ordinary conversation. The test words and phrases, if used, should be introduced into long sentences, because, if the attention is concentrated upon single words they may be pronounced correctly. Words and phrases used for this purpose are *electricity*, *national intelligency*, *methodist episcopal*, *ninth riding Massachusetts artillery brigade*, etc. Defects in speech

may also be elicited by asking the patients to read aloud. Voluntary writing usually shows defects similar to those noticed in speech, but they are proportionately more prominent (Plates 7 and 8 and fig. 2). Patients, on the other hand, who speak clearly may produce on paper an unintelligible muddle of words and syllables. In advanced cases there is complete agraphia (figs. 3 and 4). The patients are then able to make but a few unintelligible marks, and many even give up without making a sign. The handwriting is characterized by irregularities caused by the tremor, excessive pressure on the pen, and carelessness. The irregularities are more extensive than in the case of the senile, whose lines show the effect of a fine regular tremor.

Ataxia is less prominent and appears first of all in those finer movements such as are employed by skilled workmen. Later the more delicate movements in locomotion, such as turning about quickly, become affected. Finally all movements become ataxic. The clothing cannot be readily buttoned, the gait is unsteady, swaying and shuffling, and may be spastic where there is involvement of the lateral columns of the cord. The Romberg symptom appears in involvement of the posterior columns. In fact, it is not uncommon to see cases of *tabes dorsalis* develop into paresis after a duration of some years, to which condition the name of *ascending paresis* has been given. Intention tremor may be present, and in a few cases choreiform movements, which may be marked enough to simulate Huntington's chorea. Contractures and muscular atrophy may appear late in the course of the disease.

The *tendon reflexes* are exaggerated in seventy per cent. of the cases and are absent in about twenty-five per cent. The loss of patellar reflex is usually associated with immo-

A Rorgett the Rorott Rugged
Ran

FIG. 2

I Gonnott

D. M. E.

FIG. 3



FIG. 4

Fig. 2 shows, besides the excessive pressure elision, substitution of letters and syllables. The patient has attempted to write from dictation, "Around the rugged rock the rugged rascal ran."

Figs. 3 and 4 represent conditions which approach complete agraphia, in which the patients, after an attempt to write, simply laid the pen down.

bile pupils and myosis. The electrical irritability of the muscles is increased at first, but later diminished. Disturbances of the bladder are often present, both retention and incontinence, the latter usually being the result of the former. Sluggishness of the bowels may extend to obstinate constipation. Finally in the end stages there is paralysis of both sphincters. The sexual power may be increased at the onset, but later it is diminished. The *vasomotor disturbances* consist of erythema, persistent blushing of the skin, rush of blood to the head, and dermographia. The so-called *trophic* changes, acute decubitus, increased fragility of the ribs, and othematoma are of frequent occurrence, especially the first. By some, pneumonia, which often leads to fatal outcome, is regarded as a disturbance of the vagus nerve, which contains the trophic fibres for the lungs. Furthermore, there is a loss of vitality and of the power of repair in all tissues, so that a very trifling injury may lead to an extensive lesion. Acute decubitus once started is difficult to heal.

The temperature during the course of the disease is mostly normal, except toward the end, when it is apt to be subnormal. A peculiarity is the excessive elevation of temperature with trifling disturbances, such as mild bronchitis, distention of the bladder, or constipation. There is often a rise of temperature during a paralytic attack, and finally, as mentioned before, there may be a short period of a few hours or more of an excessively high temperature without apparent adequate cause.

The sleep is usually somewhat disturbed during the first stage and more so during the second, where there is motor excitement, but in the last stage the patients are sluggish and may sleep much of the time. This varies, however, as in some cases the patients may from the

onset show a tendency to sleep continually, while in other cases insomnia persists throughout the whole course. The appetite suffers at first and during excitement, but later the patients eat well. The condition of nutrition is poor until excitement subsides and deterioration is well advanced, when there is usually a great increase in weight, which may last until death. Sometimes loss of appetite and impaired nutrition coexist, leading to extreme emaciation. Other evidences of the profound disturbance of metabolism occurring in dementia paralytica are the presence of albumen and sugar in the urine and fall of the percentage of hemoglobin.

The mental symptoms enumerated above represent in general the clinical picture. The grouping of the individual symptoms, however, varies widely in different cases. This has led to the recognition of four types of cases: the *demented*, *expansive*, *agitated*, and *depressive*, each of which presents a somewhat different course from the onset. The deviations from these types deter many from the acceptance of this differentiation, but its value becomes apparent in a considerable number of cases where one is able to forecast the future duration of the disease and the character of many of the symptoms.

The demented form, because of its great predominance, and its simple character with deterioration, unaccompanied by many delusions and hallucinations and its rapid course without remissions, should be regarded as the type of the disease. The clinical picture of megalomania, which has been and still is by some regarded as the prototype of the disease, has in recent years become less and less prominent, until it is now encountered in less than twenty-five per cent. of cases.

Jan'y - 1902

Dear Sir -

Yours. L. L.

Lorick & Lusk

1000-1111
Kew - 243 -
J. D. Matheson

PLATE 7

Plate 7 shows the excessive pressure, increased rapidity in writing with carelessness, and moderate ataxia in an excessively busy and expansive paretic, whose occupation had been that of an expert accountant.

DEMENTED FORM

The demented form is characterized by *gradually progressive mental deterioration without prominence of either hallucinations, delusions, or great psycho-motor disturbance*. There may be frequent transitory periods of delirious excitement, anxious unrest with hypochondriacal ideas, depression, delusional states, or periods of megalomania, but all of these are insignificant when compared with the rapid advance of profound deterioration.

The onset of this form is very gradual. The symptoms at first may resemble those of neurasthenia; patients complain of inability to apply themselves to work, loss of energy, indefinite pains, feeling of pressure in the head, and irritability. They are forgetful and flighty, at times drowsy, and at others somewhat confused, but have a clear insight into this condition. Soon mental deterioration becomes apparent in the inability to explain their actions, in errors of judgment, failure of memory, and absence of the usual moral feelings. Their work is irksome, and they occasionally fall asleep over it. They forget to go to meals, make mistakes in figures, and overlook important matters. They are usually good-natured, tractable, are easily led astray, and often drink to intoxication. In some cases, however, they become obstinate and self-willed. The household suffers, dinner is uncooked or improperly seasoned, and the children are neglected. Patients are reckless and may even act in opposition to established precepts. In conversation the thought is sluggish and lacks individuality. Soon disturbance of *apprehension* appears, when the patients fail to comprehend thoroughly their environment, lose account of time, get confused as to place, and mistake persons.

At this time a few delusions may appear, either depressive or expansive, sometimes with hallucinations of hearing. The delusions are very weak, childish, and easily influenced by suggestion. Occasionally there are weak attempts at fabrication. Sudden changes of emotion are more prominent at first, when the feelings are easily influenced by suggestion; but later the patients become uniformly dull and apathetic. They are perfectly contented wherever placed, as long as the simplest needs are satisfied, such as food, drink, and tobacco. They have a complacent smile when addressed, greet strangers very cordially, and are very friendly with every one. Often at first there is some insight, when the patients complain of slowness of thought and failure of memory, but the later increasing deterioration obscures this feeble capacity. On the other hand, they may express a feeling of well-being and perfect confidence of their business capacity.

The capacity for work very soon suffers. The patients become careless in their duties, forget engagements, allow letters to go unanswered, go to work at all hours, and finally stay away altogether. It sometimes happens that they struggle along with their work, realizing and worrying over difficulties and frequent errors. Others neglect their occupation to look after all sorts of unnecessary and unprofitable affairs. They may become restless, wandering restlessly about, indulge in excesses or commit petty crimes. They lack will power, are easily led astray, are unable to care for themselves, forget when to go to meals, and neglect their personal appearance. On the contrary, some patients are inaccessible, repulsive, and surly, answering questions as if angry, rebuffing friendly advances and opposing without reason anything desired of them.

Maddalena let
Dear Doctor how long
these 1' ~~st~~ are ~~here~~
here about 7 years
and 1' ~~have~~ a good
time 1' have a good
time with 1' ~~have~~ 1' ~~have~~

Not like ~~Figure 1~~
Came best ~~Figure~~
wonderful nation
in calm cool
the under & get

PLATE 8

Plate 8 represents the writing of a paretic with limited education, and shows marked ataxia, which increases toward the end, also omission of words and phrases.

A few patients, in spite of an advanced stage of deterioration, present a good demeanor. They greet one correctly, and appear perfectly at ease in talking about themselves, but at the same time are disoriented, and are unable to give any coherent account of their lives. The patients usually enjoy a good appetite, sleep well, and present the picture of health. The mental deterioration may have been so gradual and so unobtrusive that the friends and relatives fail to appreciate the profound degree of deterioration exhibited.

This form of dementia paralytica embraces forty per cent. of the cases. The duration is rather shorter, seventeen per cent. of cases dying within six months, and a few living over three years. Paralytic attacks occur in almost one-half of the cases. Remissions are less frequent than in the other forms.

EXPANSIVE FORM

This form is characterized by *great prominence of expansive delusions, a prolonged course, and greater prevalence of remissions.*

The onset is usually gradual, with change of character, difficulty of mental application, and signs of failing memory and judgment. Fainting spells, short periods of excitement, and transitory speech disturbances are often the first symptoms to attract attention, although the disease may have been in progress for some time. Occasionally the onset is quite sudden.

The patients develop a marked feeling of well-being; they are bright, affable, talkative, and energetic. They busy themselves with new and elaborate schemes for getting wealthy, stake out property, and draw designs for

wonderful machines. They are busy from early morning to late at night, soliciting patronage, ordering large quantities of material for building and for other purposes. The numerous *expansive delusions* at first are within the range of possibility and may appear attractive to the unsuspecting, but soon pass into the realm of absurd imagination, reminding one very much of the prattle of children, and presenting, with the restlessness, the characteristic picture of *megalomania*. The patients claim never to have felt better in their lives, can lift tons, can whip the best man on earth, have the strength of a thousand horses, and can move a train.

They believe their English the best; they speak as fluently several other languages; their voice is clear and distinct and can be heard for many blocks, because of its excellent qualities. They have the inspiration to write a book; can compose beautiful poems; can deliver an oration on any subject. They associate only with the most cultured people; only the genuine blue blood courses through their veins; they are going to build a marble mansion at Newport, and have a floating palace. Business is flourishing; they are making a "mint of money," have several gangs of men working for them, and still there is more work than they can attend to; besides their regular business, chickens are being raised by a special improvised method at an enormous profit; they have secured rich gold claims in Alaska, which are doubling in wealth daily.

Formerly they were brakemen, but now run the fastest and finest train in the world, from New York to Chicago without a single stop, allowing none but millionaires to ride; besides a profitable law business, they are now engaged in writing a novel which will startle the world,

and for which they have received priceless offers from publishers in this country and in Europe. A ship carpenter developed wonderful power in his eyes, so that he could detect defective wood in a vessel by simply standing in the hold and looking outward, and for this reason he was appointed detective of a marine insurance company, and had travelled all over the world inspecting vessels. He had become so wealthy that all the banks in the state were in his possession.

A seamstress had devised a new method for cutting dresses, which had won her world-wide fame, having been called to all of the courts of Europe because of her wonderful success. She herself could cut and sew a hundred dresses a day, and had under her five hundred girls, all of whom used golden thread. She could sew on a thousand buttons a minute. A jockey had discovered a new way of breeding and training runners, and now from his Kentucky ranch was supplying every circuit and handicap with winners.

The utter absurdities which increase from day to day are proof of the increasing weakness. The delusions abound in contradictions and become more incoherent, the product of a more dreamy ingenuity. The patient now drives the largest engine in the world, drawing a thousand palace cars, all lined with gold and trimmed with pearls, which encircles the globe every twenty-four hours, stopping only at New York, San Francisco, Calcutta, Paris, and London. He now has formed a chicken trust to extend over the whole earth, and will reconstruct the social system of the world, so that only the Chinese will be employed in hatching the eggs. Another has a most wonderful herd of cattle, whose horns are forty feet high, whose eyes are diamonds, whose feet are gold, and each

cow produces five hundred pails of milk in twenty-four hours, the patient himself milking a thousand a day.

The patients are the most beautiful beings that ever lived. They have married seven hundred millionaires, have twenty thousand children, all of whom have gold slippers and gold dresses; they themselves wear only diamond trimmings; they can fly away in the air to a world where there is a castle ten thousand miles long filled with lovely people who do nothing but amuse themselves. They are not human but divine, can create a universe, visit all the stars, have sent Christ to Mars; whatever they touch turns to gold. They know all sciences, are the greatest physicians in existence; will build a hospital of marble twenty stories high, provided with a bar for the doctors, where the choicest wines and the best Havana cigars will be supplied; and there will be a dissecting room, with a huge ice box, where ten thousand bodies can be kept all the time.

They will build a tunnel through the earth and bring all the Chinamen here to work. One patient said that he was going to build towns; that he had been to Washington to see the President, that he wanted six thousand billion gun-boats, one million bomb-shell boats, one million marines, and that he would cross the ocean and blow up all of the countries and bring the people out west and put them on farms; that he would blow up the Queen's buildings, and that he would give each one of the marines two bags, and each would have to go two times in order to bring away the silks and diamonds.

These delusions are almost entirely self-centred. They may change rapidly, each day new and more extravagant ideas appearing, which are filled with the most glaring contradictions. In women the tendency to expansiveness

is less marked. Hallucinations are rarely encountered and never take a very prominent part in the disease picture.

Consciousness becomes somewhat clouded after the development of the delusions, and may be from the onset, especially where it is subacute. There is usually disorientation as to place and persons. The patients are too much absorbed in their numerous ideas to note the surroundings or to take account of time. Later they become acquainted with the place and a few of the persons, but they rarely know the month, day, or the year.

The *content of thought* is centred entirely about self and the many varied delusions. At first it is usually coherent, although at times, in connection with great psycho-motor restlessness, there may be incoherence, distractibility, and sometimes flight of ideas. The patient is usually talkative, and may produce a continuous stream of delusions. Incoherence of thought is more evident in their letters, the following being a sample:—

“DEAR BILLY: The early part of the twentieth century has made wonderful strides from its start, and but for a fortunate accident the men of science, education, culture and God-like Christianity, and women of gazelle-like charms, whose very presence is a panacea, would have come far short in the greatest desideratum on earth or the whole universe. The tortures of the Spanish Inquisition have been found to be the greatest elixir for the health of those whose only relief to that time had been the tender arms of our Saviour. Our laws have been changed and perjury, theft, deceptions of every conceivable manners of conveyance of information have been cut off, violence, and assault and battery. What a glorious century! This has been a year that can never be forgotten. N—o became a Christian the last of the year. Billy became a

Christian. It would have been a case for those scientific men to make a study of unheard tortures to cure this. *Grandior malum grandior bonum.*"

The *emotional attitude* corresponds closely to the content of the delusions; the patients are cheerful, happy, hopeful, contented, exalted. Everything in the environment is pleasing; they are in luxurious quarters, have the best of food, plenty of servants, fine clothing, fast horses, and are associated with the finest men in the world. It often happens that for a short time, a few moments or hours, rarely days, they lose spirits and become depressed, complaining of confinement, and expressing hypochondriacal delusions, or weep bitterly because of harassing persecutions. Even when most miserable it is possible by suggestions to reëstablish the feeling of well-being, showing the great instability of the emotional condition. Irritability is always present, manifesting itself upon the slightest provocation. Disagreements or doubts relative to their superiority or immense wealth may arouse anger or even an aggressive attack. Later in the course of the disease this disappears, leaving the patients in a uniform state of quiet cheerfulness in spite of their bedridden condition with filthiness, paralysis, and even contractures. A paretic on his death-bed, when asked how he feels, often says with some animation, "fine, fine."

The *psycho-motor condition* exhibits more or less excitement from the onset and may reach an extreme degree. At first the patients are restless, bustling about on new and important business, remaining up until late at night, devising plans, writing many letters, travelling about from place to place. They are very talkative and make confidants of every one they meet. For short periods in the course of the disease they may develop extreme restless-

ness, with insomnia, complete clouding of consciousness, recklessness, aggressiveness, and impulsiveness. They shout from fear, mutilate their own bodies, and rush about blindly diving into any obstacle. It is impossible to attract their attention or to get coherent answers. They fight off imaginary enemies and shout threats and curses. These conditions of excitement rarely last longer than a few hours or days, disappearing gradually, and usually leave the patient in a state of more profound deterioration.

In *actions* the patients soon become foolish and show a lack of judgment and moral obtuseness. They develop bad habits: smoke or swear, enjoy telling obscene stories, seek the company of lascivious women, and become disorderly in dress and careless in appearance. They may assault or commit thefts, but every action shows an absence of plan, recklessness, and utter disregard for others. When confronted with their observed behavior, it is all denied with perfect serenity.

As the disease advances, the activity is limited to the production of unintelligible letters and plans, scribbling on paper, and collecting useless rubbish. The patients are happy and contented throughout it all, invariably asserting with brightening countenance that they are feeling fine. They may be heard mumbling to themselves, "millions," "fine horses," "beautiful women," "grand mansions," — mere relics of former ideas which now represent the last traces of their intellectual life. It sometimes happens that the expansive form passes over into the depressive, and vice versa, and this may take place several times, simulating the picture of manic-depressive insanity.

The expansive form comprises from fifteen to sixteen per cent. of the paretics, and the duration is more prolonged, less than one-third of the cases dying within two years.

A few cases extend through seven to fifteen years. Remissions occur in one-third of the cases.

AGITATED FORM

This form is characterized by *its relatively sudden onset with a condition of great motor excitement and the presence of the most extremely expansive delusions, great clouding of consciousness and a short course.*

It represents a special group of the expansive form and constitutes about ten per cent. of the paretics. It may usher in the disease process, presenting great similarity to the picture of delirium tremens. A change of disposition is often noticed for a time previous to the sudden outbreak. The patients suddenly become very energetic, expressing a pronounced feeling of well-being. They are born again, possess the ambition and the strength of ten thousand men; could carry an ocean vessel or fly to the moon in a second. They have acquired all knowledge, can educate a thousand men an hour, teaching them to speak every known language. They themselves are God, God over God, have created God and the universe; have been everywhere from the heights of heaven to the depths of hell. They are now establishing a new method of reckoning time; by their decree the days are to be one thousand hours long, and the weeks are to contain one thousand days, and the years ten thousand months. They know how to create animals, and by a new formula man shall be increased a hundred-fold in size and shall have a third eye. The world moves and stands at their command. They are interested in all wars and have marshalled huge armies. All great battles have been won by them. Their wealth is fabulous, more than any one man

ever possessed before. All quantities are reckoned in the ten thousand billions; they own ten thousand billion houses; ten thousand billion cows; ten thousand billion acres of land, etc. Their houses are built of Italian marble, with gilded domes set with diamonds; the floors are of onyx, all furniture is of pure gold, and the hangings are of the finest fabric, trimmed with pearls and sapphires. Their ideas become more and more expansive, and finally seem even to surpass the bounds of imagination.

Very often they give expression to a few pessimistic ideas which may be hypochondriacal: they are suffering untold misery from sharp pains in the back; some one entered the room at night and disembowelled them, so that the following morning they could not go to stool; miles of fine electric wires have been placed in the flesh, about the limbs and completely filling the skull, through which electrical currents are nightly applied, causing the flesh to burn. There may be some insight into the failing memory and the defective nutrition, which leads them momentarily to fear that they are suffering from cancer of the most malignant type, but at the same time one is assured that they are undergoing a process of purification which will leave them healthier and mightier. Sometimes they are perplexed at their own stupidity for allowing themselves to be confined in a hospital instead of going to Europe to consummate a deal by which millions would have been made. Hallucinations of sight and hearing may be present, but are not prominent, failing to influence the clinical picture to any extent.

The *psycho-motor condition* is much disturbed, showing great restlessness and occasional impulsive movements. The patients are talkative, sing, laugh, shout, and prattle

away like children over their innumerable plans and many pleasures. They are constantly in motion, going from one thing to another, working in a planless way on various schemes, scribbling unintelligible letters to millionaire friends, issuing commands to military staffs, and sending cablegrams to the different crowned heads. They have no care for themselves, neglect personal appearance, forget about eating, smear their dresses or the walls with the food placed before them, masturbate, and expose themselves indecently.

The *association of ideas* is somewhat incoherent, passing rapidly from one idea to another, often with a flight of ideas. It centres entirely about themselves and their plans. There is a marked irritability, interference quickly leading to an outburst of passion, with cursing, threats, and aggressiveness. The emotional attitude is usually one of great exhilaration. Physically, the condition of nutrition suffers profoundly, and there is a great loss of weight, because of the small amount of food ingested and great restlessness. The temperature may be subnormal.

A few cases of the agitated form may be characterized as the "*galloping variety*," in which there is a rapidly fatal course with a clinical picture very similar to that of an "Acute Delirium." These cases present an *extreme grade of excitement and profound clouding of consciousness, leading in a few weeks or months to fatal collapse*. This condition sometimes represents the end stage of the agitated or of the depressed form. The patients are completely confused, unable to comprehend the surroundings or to respond to questions. They are noisy, shouting and singing, producing an unintelligible babble, with many repetitions of syllables or purely inarticulate sounds. The restlessness is extreme, the patients being in constant

motion, pounding the bed or wall, forcing the legs up and down, running about the room, slapping their hands, waltzing to and fro, and bruising themselves extensively by their reckless movements. The weight falls rapidly, the temperature becomes slightly elevated, and the heart's action feeble and irregular. Epileptiform and apoplectiform attacks are frequent. After a few weeks or months the restlessness subsides into a condition of stupor, in which the movements are uncertain and tremulous. The temperature becomes elevated as the result of infection from the various wounds or acute decubitus, the mouth is filled with sordes, profuse perspiration and diarrhœa appear, which with heart failure lead to death.

Remissions occur in one-fourth of the cases. Paralytic attacks are frequent. The duration in more than two-thirds of the cases is less than two years.

DEPRESSED FORM

This form is characterized by *the depressed tone of the emotional attitude and of the delusions throughout the whole course of the disease.*

The onset of the disease in this form is insidious. The patients notice their failing memory, their decreasing power of application, their greater weariness upon exertion, and their change of disposition. The mind becomes centred upon their condition and they become despondent over it. The persistent headaches, the numerous pains, and failing memory lead them to consult one physician after another. They soon become *hypochondriacal*, claim that they are syphilitic, that they can never recover, and that they are suffering from a complication of diseases. Very often this condition is primarily diagnosticated and treated as neurasthenia.

Their hypochondriacal complaints sooner or later become entirely senseless. They then complain that the scalp is rotting away, the skull is filling in with bone, causing the brain to shrink, the mouth is filled with sores, the sense of taste is lost, the throat is clogged up, so that food passes up into the brain, the stomach is melted away, and the intestines are so paralyzed that there has been an accumulation of excrement within them for many months, the kidneys have been moved, so that water passes directly through them. They claim that they are dead, the blood has ceased to circulate, and they have turned to stone. The testicles have dried up, and their manhood has disappeared, a false passage has formed so that the "vital fluid" passes out of the rectum. In connection with these ideas they are constantly fingering different parts of the body, especially the face and sexual organs. They may sit for hours with hands on their throat for fear feces will pass into the mouth, or may lie abed as if dead, claiming that they would fall apart if moved.

Delusions of self-accusation are usually associated with these hypochondriacal ideas and occasionally predominate in the clinical picture. The patients believe themselves great sinners, that they have committed the unpardonable sin, must die on the cross, have stolen property, and injured their children. They have caused the death of a friend by negligence, and every one knows that they are murderers. They persist that they have always been impure and have led many astray. A patient moaned for months because he had not provided his family with sufficient food and was being held up to the whole world as an example and must suffer the penalty of death. Very often in connection with these ideas of self-accusation they are fearful, because they are being constantly watched, expect-

ing at any moment to be imprisoned or carried away to the scaffold.

Delusions of persecution may exist independently of the self-accusations, when they suspect plots against their lives, and complain that their families are being outraged. They are being regarded as desperadoes on whose head there is a high price. The troops have been summoned to escort them into exile.

Hallucinations of hearing often accompany these various delusions. The patients listen to the reading of their own indictment, are slandered by a crowd of men outside, or overhear an intrigue against them.

The *consciousness* soon becomes much clouded. There is considerable disorientation, friends are mistaken, and time is confused. Occurrences in the surroundings have reference only to themselves. The bathing of others suggests to their minds that they have polluted their fellow-patients, and the preparation for the morning walk signifies that the whole company are getting ready to attend their public prosecution. At the table others are deprived of food on their account. In this condition they develop great anxiety with restlessness; pace back and forth in their rooms, moaning and groaning, sometimes uttering single expressions, as "death," "destruction," pick at their finger-nails, pull out their hair, are unable to eat, and refuse to enter the dining room or even leave their own rooms. Every unusual sound causes them to shudder and shrink back farther into their rooms, because of intense fear. Finally they cannot be persuaded to leave the bed, but lie huddled up at one side, with the head buried in the clothing. In this condition they may attempt suicide or mutilate their own bodies; one patient tore through the anal sphincter into the vagina with her

hand. Extreme anxiety with restlessness does not exist very long at a time, usually only for a few hours or a few days. In the interval the patients are quiet but despondent and seclusive. Although retaining many of the depressive delusions, they show no emotion.

The mental depression is not always uniform, as one occasionally notices a feeling of well-being or indifference, and some humor, which by the shorter duration serves to differentiate this depressed condition from that found in other psychoses, especially melancholia of involution. *Stuporous states* appear at times, when the patients are mute, perhaps resistive, lying abed in one position oblivious to the surroundings, refusing nourishment and allowing the feces and urine to pass unheeded. They may be emotional at times, and even lachrymose, or may show some anxiety. Hallucinations and illusions may be more or less prominent or entirely wanting during the stupor, which may last for several months.

A few cases occur in this form, which simulate for a time *paranoia* or the *paranoid form of dementia præcox*. The chief symptom is a coherent system of delusions of persecution with clear consciousness, a coherent train of thought, and a normal emotional attitude. After some months, or perhaps a year, contradictions, infrequent repetitions, or incoherence in thought and weakness in manner make it evident that there is a rapid deterioration process. The patients adhere to the delusions less persistently, the delusions fail to form the basis for their actions, and their judgment shows great weakness.

The depressive form of *dementia paralytica* comprises one-fourth of the cases, and appears rather late in life, mostly after forty years of age. Remissions in this form are rare, occurring in less than twelve per cent. of the cases.

The course is rather short, as the greater number die within two years.

Course. — Dementia paralytica has been divided into three stages by many writers: the stage of onset, the stage of acute symptoms, and the terminal stage of dementia. The lines of division are very indefinite, as the first stage may very quickly pass into the acute stage, when the symptoms remain in abeyance for a few years, or the case may be one of apathetic deterioration from the onset, devoid of any prominent symptoms indicative of definite stages. The terminal stage is apt to be prolonged. In it the patients are dull, stupid, apathetic, entirely indifferent to their surroundings, unable to care for themselves or occasionally expressing incoherent fragments of former delusions. They sit unoccupied save for the taking of nourishment, to which they often have to be helped. The physical symptoms in this stage advance to general paresis of all of the muscles, necessitating confinement in bed. Sensation is greatly impaired, muscular atrophy and weakness become marked, and finally contractures appear. In the end patients become nothing more than vegetating organisms. The physical signs in the different stages vary considerably and stand in no definite relation to the mental symptoms appearing before, simultaneously with, or following the latter.

The two important factors in the course of the disease are *paralytic attacks* and *remissions*. The attacks may appear at any time during the course, producing an unexpected progress in deterioration or even a fatal termination. They may usher in the disease, being followed by a condition of advanced deterioration, but more frequently occur during the terminal stage. These attacks appear most frequently in the demented and the expansive forms.

Remissions are most often encountered in the agitated and expansive forms and very rarely in the demented forms. The improvement which is usually rapid, appears only during the earlier stages of the disease. Both the physical and mental symptoms show marked improvement; the consciousness becomes clear, the content of thought coherent, and the delusions and hallucinations disappear. The patients often look back upon their psychosis as a sort of dream without a clear insight. In the course of a month or two they may have so far improved that as far as limited associations of the institution permit, they appear perfectly well. When at liberty, however, it is apparent to their friends that they have lost their former mental energy, they tire easily, and are changed in disposition. Yet they are usually eager for employment and disregard the advice of the physicians to exercise care. Some of the patients are able to engage successfully in their former occupation and support their families. In other cases the remission is only partial, the patients become clear and coherent, while the expansive and depressive delusions disappear; but there still remains a tendency to excessive activity, with a desire to enter into uncertain business ventures, to be lavish with money, careless in personal appearance, and irritable and fretful in disposition. The duration of the remission seldom lasts over three or four months, but in some cases it extends over three years.

Diagnosis. — In the diagnosis of dementia paralytica the essential symptoms are defective memory and attention, weakness of judgment, emotional indifference, change of moral character with greater pliancy in conduct, and the physical symptoms, of which defective pupillary reaction is the most prominent. According to Siemerling ninety-

two per cent. of immobile pupils belong to paretics. Defective speech with slurring, inability to arrange syllables and words in proper order, and tremor of the facial muscles, are almost sure signs of the disease. The apoplectiform and epileptiform attacks without residual motor paralysis, if epilepsy, alcoholism, uremia, and diabetes can be excluded, point to dementia paralytica.

The disease is distinguished from *neurasthenia* by the absence of insight, failure to carry out medical advice, and lack of improvement with simple relaxation. Neurasthenics appreciate too keenly their illness, exaggerate their symptoms, and at the same time try to alleviate their condition. They complain of failing memory, which really does not exist, while paretics often fail to recognize such mental defect. The physical symptoms of neurasthenia are confined to dizziness, slight stammering when embarrassed, and fine tremor of the tongue, with increase of the tendon reflexes. One should at least think of paresis when neurasthenic symptoms appear for the first time in middle life without adequate cause.

The depressive form of the disease is distinguished from *melancholia of involution* by the presence of mental deterioration, weakness of judgment, moral instability, failure of memory, defective time orientation, silliness and incoherence of the delusions, and presence of physical signs. The melancholiac shows a greater prominence of self-accusations and infrequent clouding of consciousness, except in cases with great prominence of hallucinations and delusions, where the differentiation must depend almost entirely upon the presence of physical signs.

The *depressive forms of manic-depressive insanity* are distinguished by the absence of any signs of mental deterioration and by the presence of retardation among the

motor phenomena. In the stuporous states the manic-depressive patient partially apprehends his surroundings, although he takes no part in them; he shows some anxiety and discomfort when interfered with and seldom moves voluntarily, while the paretic is unable to comprehend his surroundings, fails to heed threatening attacks, and occasionally moves freely and even restlessly.

The *maniacal forms of manic-depressive insanity* are differentiated from the expansive and agitated forms of paresis by the pressure of activity and the absence of mental deterioration. The paretic is unable to recall correctly recent events, and especially the date of their occurrence. His delusions are more extreme, fantastic, and contradictory; his emotional attitude is variable, and dependent upon the surroundings and suggestions. The maniac, on the other hand, is more alert and quick in apprehending when his attention can be attracted, he shows an acute memory, his delusions are less often contradictory, are expressed with less assurance and more facetiousness, and he is seldom contented and less pliable.

It often happens that periods of excitement at the onset of the disease are mistaken for delirium tremens, especially where early paretic symptoms have escaped notice in an alcoholic. In the paretic there is a profound clouding of consciousness, and an absence of terrifying hallucinations of sight and hearing, while the alcoholic presents the characteristic mixture of anxiety and humor.

Dementia præcox is differentiated by the absence of the characteristic physical signs, less prominent clouding of consciousness, the presence of mannerisms; and the catatonic forms by the stereotyped actions and speech, and negativism. The paranoid forms do not show paretic inability to comprehend the surroundings, require consider-

able time for the delusions to equal in expansiveness those of paresis, and the coherence in thought is well retained.

Senile dementia, which is also due to extensive degeneration in the cortex, may be recognized by the age at onset, the more prolonged course, comparative poverty of delusions and absence of characteristic motor symptoms, excepting partial paralysis and apoplectiform attacks, the last of which in senile dementia are usually followed by signs of motor paralysis, which persist for at least a few weeks.

Cases of *cerebral tumor* occasionally run a typical course of the demented form of dementia paralytica, the only point of differentiation being the cupped optic disc. Usually brain tumors give evidence of focal motor symptoms, and are associated with very little mental deterioration.

Cerebral lues, when not focal and when occurring later than ten years after the primary infection, can be distinguished from dementia paralytica only with difficulty. It usually shows marked improvement under the influence of anti-syphilitic treatment, but even this is not a sure sign, as the improvement may be only temporary, the disease later running a typical course of dementia paralytica.

The **prognosis** of the disease is decidedly unfavorable. Death occurs in the vast majority of cases within two years; the length of life, however, varies in the different forms; a few cases survive five or six years. One case of eighteen years has been reported. The immediate causes of death are paralytic attacks, pneumonia, and intercurrent diseases, sometimes septicæmia following infection from wounds, sometimes suffocation caused by food entering the air passages; but the usual manner of death is from marasmus and heart failure. The patients become emaciated, the muscles atrophy, the heart weakens, the pulse becomes imperceptible, and life gradually flickers out.

The treatment of the disease is purely symptomatic, the first requisite being forced rest, with the removal from business and uncomfortable surroundings, and the establishment of a suitable routine in the physical and mental life. Quiet and tractable patients in good circumstances may be treated at home, but others require hospital treatment. Suitable rest and relaxation cannot be procured at a fashionable health resort with the bath cures, massage, and numerous attractions. Next to rest, there should be planned a nutritious diet, abstinence from alcohol, coffee, tea, and tobacco. Moderate exercise in the open air, and carefully executed hydrotherapy and light massage are of great value. The administration of anti-syphilitic treatment is more often detrimental than helpful. The cases of marked improvement claimed to follow its use only coincide with the average number of expected remissions, while in many cases in which there is no improvement, deterioration seems to be more rapid and profound.

The conditions of excitement are usually relieved by prolonged warm baths, given at a temperature of ninety-eight to one hundred degrees, and from one-half to two or more hours in duration. In conditions of excitement with extreme filthiness, the patients may be kept in the bath continuously for some days.¹

¹ Where the warm bath is inaccessible, the cold packs may be substituted, which in the hands of several American physicians seems to give excellent results. The packs to be effective must be properly applied. The partial pack usually suffices to bring about the desired result, applying it to the lower extremities, or to the arms. In the whole pack a large and heavy woollen blanket is spread upon the mattress, and over it is laid a coarse linen sheet, well wrung out in water of a temperature from sixty to seventy degrees, so placed that the patient can lie at the junction of the middle, and right third of the sheet. When the patient is in position, with the arms elevated, and provided with a wet turban, the right portion of the sheet is drawn across the body and tucked. The arms are lowered to the side and covered

The conditions of extreme anxious unrest with excitement seldom yield to any form of treatment. If prolonged warm baths or cold packs fail, one may try large subcutaneous injections (one and one-half pints) of normal salt solution, which can be repeated twice daily for a week.

In the last stages of the disease, extreme cleanliness is the essential requisite. It is only by this means that bed-sores can be avoided. The bed-clothing must be kept dry, clean, smooth, and free from crumbs, and the body frequently cleaned with cold water and alcohol. Frequent changes of the position of the body prevent the occurrence of hypostatic pneumonia. Acute decubitus, once formed, is very obstinate and should be treated surgically as an ulcer. The nourishment in this stage must be liquid, in order to prevent choking. Daily observation of the condition of the bladder and bowels is also necessary. Finally, the mouth should be kept thoroughly clean. The paralytic attacks may yield to ice packs on the head or to amylene hydrate (thirty to sixty minims) or chloral hydrate, the former of which may be given by subcutaneous injections in a five to ten per cent. solution.

with the left portion of the sheet, which is drawn across the body and securely tucked, especially about the neck and feet. The patient is then covered with several woollen blankets. The duration of the pack should be from one-half to one hour, and may be followed by brisk rubbing with alcohol. The duration of the partial pack may be more extended than that of the whole pack. When the patient falls asleep in it, it is not necessary that it be removed until he awakes. There is no harm in an immediate renewal of the partial pack. It should be remembered in the application of these partial packs, as well as in the whole packs, that all air must be excluded from in under the cover of woollen blankets, for which purpose many use a final covering of rubber cloth or oil silk.

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ORGANIC DEMENTIA

THE psychoses arising from organic disease of the brain are described under two divisions according as the lesions are diffuse or localized.

DIFFUSE LESIONS

Fuerstner has described a condition of *gliosis* of the superficial layers of the cortex with cyst formation and atrophy of the nervous elements, which clinically is represented by infantile convulsions or imbecility, and a progressive mental deterioration with weakness of memory, speech disturbance, optic atrophy, and even tabetic symptoms.

Besides the diffuse sclerosis of the brain, with progressive mental deterioration, hemiplegia, convulsive attacks, increase of the patellar reflexes and spasms, Homen¹ has called attention to a condition similar to the demented form of paresis in children of the same parents, called delayed *hereditary syphilis*. In it there is extensive endarteritis, and atrophy of nerve fibres, especially in the frontal lobes, slight changes in the cell bodies, and an increase of neuroglia.

Alzheimer² and Binswanger³ designate as *arterio-sclerotic insanity*, a psychosis characterized by gradual development with headache, vertigo, irritability, loss of

¹ Archiv. f. Psy., XXIV, 1.

² Berlin. klin. Wochenschr., 1894, 49.

³ Allgem. Zeitschr. f. Psych. LI, 809; ebenda, LIII, 863.

memory, and stupidity, and many remissions with transitory periods of brightness and normal behavior even in dementia; physically by disturbances of speech, both paretic and aphasic, and frequent circumscribed paralyses. It appears from the fortieth to the fiftieth year. The vessels present diffusely, sometimes also in circumscribed areas, thickened walls, dilated lumina, many miliary aneurisms, and capillary hemorrhages, and there is an increase of neuroglia, and degeneration and atrophy of the cortical neurones. Arteriosclerotic changes in the other organs are prominent.

Binswanger has also described *encephalitis subcorticalis chronica progressiva*, which appears in senility, involves especially the posterior portions of the cerebrum, and is characterized by an atrophy of the corona radialis with dilatation of the ventricles. Clinically there is progressive dementia with many persistent focal lesions.

The mental condition accompanying *multiple sclerosis* depends upon the diffuseness of the process. In the diffuse lesions there are general progressive mental deterioration and confusion or excitement, as well as nystagmus, intention tremor, and scanning speech.

LOCALIZED LESIONS

Of the localized brain lesions, the most important are tumors, abscesses, hemorrhages, emboli, and thrombi.

In large *brain tumors* the mental symptoms are more apt to depend upon the intracranial pressure, and as such consist of dulness, a certain insensibility, and apathy which increases to lethargy. If the tumor is of slow growth, causing disintegration rather than displacement, the mental symptoms may be very slight until near the end.

Cerebral abscess of gradual development may be unaccompanied by any mental symptoms until far advanced, when stupor appears with or without convulsive attacks. In more rapid cases of traumatic character, stupor is the most prominent symptom, in which there may be some restlessness, resistance, or delirious behavior with incoherent speech, sometimes associated with aphasia, slow pulse, Cheyne-Stokes respiration, and epileptic attacks.

The mental disturbance accompanying *cerebral hemorrhage* or *embolism* at the time of the insult is one of clouded consciousness with disorientation and confused actions, sometimes accompanied by motor resistance and loud talking or outcries. When the patients become oriented and quiet, the memory is found to be defective, especially with reference to the time of occurrence of events of their former life. Many are quite unable to calculate time. Besides this, there is frequently failure of memory for certain definite groups of ideas, as, for proper names and numbers. It is often very difficult to estimate the mental capacity of patients, because of aphasic or paraphasic disturbances. Patients of good mentality are, for this reason, sometimes considered imbecile. Extensive lesions in the cortex produce general mental enfeeblement with defective judgment and difficulty and slowness of thought. Occasionally ideas of persecution appear. In emotional attitude there is a great tendency to fluctuation; at one time the patients are lachrymose, petulant, and quarrelsome, at others careless, indifferent, and even stupid. Besides showing a constant tendency to excitability, they may also present transitory periods of motor excitement, with great talkativeness and expansive ideas. These latter states are often associated with postapoplectic and epileptiform attacks. Moral obtuse-

ness becomes evident in the lack of regard for the family and social customs, as well as the great selfishness and lack of interest in matters which formerly most concerned them. The patients may begin to drink, loaf, and squander their property.

A considerable group of cases of mental disturbance follow *head injury*. Insolation is regarded as a form of head injury. The immediate result of severe cerebral concussion is apt to be a condition of unconsciousness, which may last from a few hours to several weeks. In this state the patients are completely disoriented, without memory for passing or previous events, or at most, a very vague memory, and show a marked tendency to fabrication. Thought is slow and difficult. They are usually irritable, emotional, sometimes talkative, and often restless. There is no insight.

The secondary effects appear as a permanent change in the personality. Following the injury, there may be no striking symptom except that the man is changed. This alteration may consist of unusual fatigue upon slight exertion, forgetfulness, inattention, unwonted timidity, moderate depression, and a tendency to irritability which may extend even to an exhibition of passion. There is almost always increased susceptibility to alcohol. Periodical exacerbations of the symptoms is a striking feature. Among the nervous symptoms the most prominent are convulsions, irresponsive or unequal pupils, deviation of the axes of the eyes and of the tongue, and defective hearing.

Difficulties in **diagnosis** arise in most of these different mental disturbances, especially in differentiation from dementia paralytica. The etiological factors, the character of the onset, the clinical course of the psychosis, and the

character of the nervous symptoms are the most important aids in the diagnosis. Symptoms indicative of a circumscribed lesion do not point to paresis. Brain tumor is occasionally mistaken for hysteria.

The treatment is of little avail except in syphilitic focal lesions, abscesses, and a few cases of tumor, and also in traumatic psychoses with depressed fracture of the calvarium, or with the formation of hæmatoma of the dura. Success in traumatic cases depends in great part upon the time of operation. If some time is allowed to elapse, improvement following operations is only transitory.

INVOLUTION PSYCHOSES

THE three forms of mental disease, melancholia, presenile delusional insanity, and senile dementia, described as involution psychoses, seem to stand in a causal relationship to the general physical changes accompanying involution. The relationship is quite apparent in senility, but such changes may become evident in the characteristic mental disturbances occurring as early as the fifth decade. Naturally there is no distinct border line between the period of evolution and involution. The mental disturbances of the period of involution, used in a narrow sense, are always, in spite of many symptoms in common, of a somewhat different stamp than those characteristic of old age. Those occurring in the former period are called melancholia and presenile delusional insanity, and the latter senile dementia.

MELANCHOLIA

Melancholia is restricted to certain conditions of mental depression occurring during the period of involution. It is to be distinguished from the melancholia of some other writers, who apply the term to any condition of depression, whether it enters into the picture of dementia paralytica, or is a premonitory symptom of acute delirium, or accompanies hysterical insanity, etc. In this broad sense it simply expresses an emotional state. Melancholia, as applied here, represents two groups of cases, which are

characterized by *uniform depression with fear, various delusions of self-accusation, of persecution, and of a hypochondriacal nature, with moderate clouding of consciousness and disturbance of the train of thought, leading in the greater number of cases after a prolonged course to moderate mental deterioration.*

Etiology. — The disease should be regarded as one of the evidences of beginning senility. The majority of cases occur between the ages of forty and sixty. It seldom occurs under forty or over sixty. Sixty per cent. are women. In women the disease appears a little earlier, seeming to bear a relation to the climacterium, while in men the onset is later. Defective heredity occurs in a little over one-half of the patients. External influences, such as mental shock, the loss of friends, illness from acute and chronic diseases, and surgical operations, seem to play a rather important part as exciting causes of the disease.

Pathological Anatomy. — The anatomical changes which have thus far been noted are only those of arteriosclerosis.

Symptomatology. — The **First Group** of cases is the more common. Prodromal symptoms very often exist for many months, of which the most prominent are persistent headache, vertigo, indefinite pains, general debility, loss of appetite, constipation, palpitation of the heart, and increasing difficulty with work.

The onset is gradual, extending through months and sometimes even years. The patients become sad, dejected, and apprehensive, and find no enjoyment in their work or home environment. They are overpowered by doubts, fears, and self-accusations, refusing to be consoled by friends. They feel ill, complain of being dumb, confused,

and forgetful, and find it difficult to do anything. During this period there are occasional days when they are free from apprehension and sorrow.

Delusions of *self-accusation* become prominent. Patients become retrospective, many misdeeds are referred to in going over their past life, which are held as an adequate basis for their depression. These retrospective self-accusations form a prominent symptom. Remote and often insignificant facts are recalled, such as the stealing of fruit in childhood, disobedience to parents and neglect of friends, which now cause them the greatest anxiety. They are perfectly wretched about it. Their whole life has been made up of similar misdeeds. A patient was miserable because she had requested her sick sister to remain out of the kitchen; another because at the death of her mother she had allowed herself to think of and mention the division of property. Many refer to former sexual indiscretions. These references vary from day to day, or may be maintained with great firmness for a long time.

A *religious strain* is very prominent in many. They are wretched because they are not as fervent in prayer as formerly; they no longer possess real religious feelings, or have sinned against the Holy Ghost. The patients reproach themselves for everything; they cannot do anything right. Everything in the environment is a source of special anxiety to themselves; the lamentations of a fellow patient are directly the result of their own misdeeds, others want for food if they eat.

Other delusions of fear are those of punishment for past misdeeds. The patients believe themselves damned by God; they will be turned out of their home, brought to court, thrown into prison, or killed outright. People are waiting outside to carry them off, the death warrant

is already signed. There is no need of taking food. They would rather starve and suffer for their misconduct, and even ask to be put out of the way. Sometimes they even exaggerate their misdeeds and confess crimes which they have never committed, in order to secure severer punishment and obtain relief for their guilty consciences.

In other cases the delusions are *hypochondriacal* in nature. Patients insist that they are the most unfortunate individuals in the world; the stomach is gone, the lungs are filled up, shrunk, and all sensation lost. The brains and nerves are rotting away as the result of former sexual abuse. They fear that they are dying of consumption or cancer, and that they are going out of their minds and must end their days in an asylum. They maintain that the body has been poisoned, banishing all appetite, and now they must starve. They also express considerable apprehension for themselves and families; they will be deprived of their home, some great calamity will visit them, the children will die, or they themselves will be robbed and killed, will be driven from the church and damned by God.

These depressive delusions so thoroughly influence their actions that they become seclusive, eat sparingly or not at all, refuse to spend money, and clothe themselves and their children scantily. They give up everything because they have only a short time to live. *Hallucinations of hearing* and *sight* accompany this condition, but they are usually indefinite and of short duration. The consciousness is usually clear. The patients are mostly well oriented. They may, however, fail to recognize where they are, claiming that they are in a prison, and they may mistake strangers for acquaintances, but in spite of this it may be readily seen that they comprehend well.

Thought is coherent and relevant, but the content is usually centred about the depressive ideas, to which they always recur with great frequency, recounting their misdeeds and the dreadful things to happen. Very often they show a tendency to repeat certain phrases, as "Let me go home, let me go home; I want to see my children, I want to see my children." There is usually some insight into their illness, the patients complaining that their head is not right, and readily submitting to treatment, but at the same time failing to recognize many symptoms of the disease as such.

In *conduct* the patients show a certain constraint and lack of freedom in movements, but are not uniformly retarded, as in manic-depressive insanity. They may be indolent, sitting for hours, and even days, with folded hands, or keeping to bed. Very many are restless, attempting to remain at work and to busy themselves in order to drive away their bad feelings. The countenance is sad, the figure loses its elasticity. The voice may be low and feeble, and the individual movements are rather listless. Attempts at suicide are frequent in this form, and very often are the result of deliberation, but with a few they come as an impulse.

The **Second Group** of cases is characterized by a greater predominance of delusions of fear, which are apt to be extremely silly, and sometimes even nihilistic, many hallucinations, great clouding of consciousness, and some motor unrest.

The prodromal symptoms and the onset are usually similar to those of the first group. The onset may be more rapid, especially in cases with prominent exciting causes. The slight depression soon gives way to *extreme dejection*. The patients accuse themselves of horrible

crimes, which have led to their banishment or to threatened execution: have murdered their husbands, devoured their children, have brought sin upon the whole world. All wickedness is due to them, they have desecrated the communion bread, or have spat upon the image of Christ. They are totally unworthy, should be buried alive, no one should speak to them, hanging is too good, and they should be thrown into molten metal. External associations enter into and play an important part in their misery. Things about them seem unnatural and have a gloomy aspect, passing carriages are regarded as a funeral procession, the tolling of the church bell indicates that some one has died. A spoon lying on the table means that medicine has been taken, and some one is now at the point of death. Hammer and nails found on the floor mean that a scaffold is being secretly built for their execution. Everything is awfully changed to them, friends and relatives are different, the sun and the moon do not shine the same, and the house is transformed into a dungeon. The end of the world has come, they are now to be passed into a lion's den. The hypochondriacal ideas are apt to be extremely absurd. The patients claim that they have no breath, the blood has stopped circulating, the eyes are rotting away, maggots are crawling under the skin, and the brain is solid rock.

The depressive delusions in some cases become *nihilistic* (*délire de negation*), when the patients claim that nothing exists, there is no more food, no more houses, no more trees, no cities, no day or night, no sun or moon, no one is alive. They are alone in the universe as there is no world. They themselves have no name, no wife, no children. They cannot eat, cannot speak, cannot die. Occasionally sexual delusions of a silly character are present, the patients

maintaining that they have been outraged at night, are now in a house of ill repute, or surrounded by men disguised as women. These depressive delusions are definite, coherent, and usually well retained. There are a few cases, especially those with progressive mental deterioration, in which a few expansive delusions appear.

Hallucinations of both hearing and sight are very prominent. Voices are heard, the devil speaks to them, strangers call them names and blaspheme, and bells are heard. Patients hear the evil thoughts of others, they see strange forms beside them at night, moving bodies and spirits. Occasionally they detect strange odors and tastes in food, and smell vapors at night.

Consciousness in this group of cases is usually much clouded, showing disorientation for time, place, and persons. The train of thought shows confusion, and is limited to various delusions, in the expression of which the patients are apt to show considerable repetition. Sometimes single phrases are repeated for hours, as "What did I do? what did I do? My God! my God!" It is sometimes surprising, however, to find that they are able to answer questions coherently, and to clearly describe their symptoms.

The *emotional attitude* is uniformly one of depression. The basis for this emotional depression seems to be *fear*, a feeling of oppression, and inner anxiety. Some patients claim that it is as if a heavy weight was upon the chest. They are timid, uneasy, and feel as though homesick. The fear is increased by association with those who are accustomed to arouse in them the deepest feelings, while strangers and new environment create little emotional reaction. Emotional outbreaks may be present at times, when the patients are greatly agitated, and may even

present a dreamy disturbance of consciousness. These frequently follow visits of relatives or some unusual occurrence.

In *conduct* the patients are restless and agitated, bewailing their misfortune, wringing their hands in agony, or pacing the floor. In their anguish some beat themselves, pull out their hair and pick at their finger-nails. Others groan and tremble, constantly repeating over and over single phrases, as "Tell me what shall I do, what shall I do?" In this condition they have no time nor desire for eating. The attire and general appearance are entirely neglected. The frequent attempts at suicide are here more often the result of impulse, in the accomplishment of which some fairly hack themselves to pieces; one woman reduced her scalp to pulp with a hammer, fracturing her skull in several places, and without any regard for pain; another devoured the ends of sulphur matches. Some of the patients are more composed, and are able to sit or lie quietly most of the time, only occasionally rising to gaze about them in fear or perplexity. While the individual movements are often slow, they are not uniformly retarded, as the patients are able to execute orders readily and quickly. A few cases present symptoms similar to those in the catatonic form of dementia præcox, such as stupidity, constrained positions, catalepsy, and echolalia; while true negativism, stereotyped movements, mannerisms, and impulsive actions are rarely encountered.

Physical Symptoms. — The sleep is scanty, disturbed by dreams, and unrefreshing. The nutrition suffers and the weight sinks. Appetite is poor and digestion is defective, the bowels are very sluggish, the tongue is coated, and the breath foul. The mucous surfaces are anæmic. There are apt to be numerous subjective sen-

sations about the heart, such as palpitation, uneasiness, and a feeling of pressure. Circulatory disturbances are often present, as cyanosis, coldness and edema of the limbs. The pulse may be small and irregular or slow, and the arteries may give evidence of beginning sclerosis. Other changes indicative of senility are sluggish reaction of pupils, grayness of the hair, cessation of the menses, dryness and harshness of the skin.

Course. — There is a gradual development, a prolonged duration, and a still more gradual convalescence. In cases of recovery the whole course lasts at least twelve months to two years. Short remissions, during which there is only a partial disappearance of the symptoms, occur throughout the whole course. Exacerbations often arise as the result of annoyance, fatigue, and excitation, such as that induced by visits. A gradual improvement of the physical symptoms, especially an increase in weight, may be regarded as a favorable sign. The remissions become longer and more marked, and the apprehension gives way to irritability and fretfulness; the patients then begin to display interest in work and reading. Even when convalescence is well established, it is not unusual for them to have "bad days," during which they are troubled and apprehensive.

Diagnosis. — The greatest difficulty arises in distinguishing those cases of the depressive form of *manic-depressive* insanity which appear for the first time in involution. The essential difference is found in the psychomotor condition. In melancholia the actions are all the natural expression of the anxious and irritable state of the emotional attitude, while in the depression of the manic-depressive patient there is retardation and slowness of involuntary movements. The irritability of the melancholiac expresses an

inward anxiety, but the occasional irritability of the manic-depressive is accompanied by some pressure of activity in conduct and speech.

Considerable trouble may be experienced in differentiating *dementia paralytica*. In melancholia one finds a subacute onset following definite prodromal symptoms; greater or less clouding of consciousness, a more consistent emotional attitude, and absence of evidences of mental deterioration early in the disease, while in *dementia paralytica* there is a gradual onset with early evidence of mental deterioration, defective time orientation, poor judgment and memory, silly and contradictory delusions. Furthermore, the emotional attitude does not always correspond with the ideas expressed, and consciousness is more deeply clouded.

Prognosis.—The prognosis is not favorable, considering that only one-third of the cases recover, the remaining two-thirds undergoing mental deterioration. However, at least one-half the cases improve so as to be able to return home and live comfortably, sometimes aiding in the maintenance of the family. Almost one-quarter die of intercurrent affections, mostly tuberculosis, within two or three years. The patients, being apathetic and anergic, taking little exercise and insufficient food, become more and more emaciated, and finally succumb to some infectious or chronic disease. The prognosis is less favorable over fifty-five years of age.

In those who improve, but do not recover, the depression with the delusions disappear, and the consciousness becomes perfectly clear, but the patients fail to develop interest in the surroundings and to adapt themselves to any kind of work. They are dull, stupid, and indifferent. Others, who show deeper deterioration, after the disappearance of the marked delusional state, fail to gain insight

and to recover coherence of thought. They are forgetful, apathetic, and entirely unable to apply themselves. Residuals of former delusions as well as a few hallucinations and some expansive ideas remain. Indications of an unfavorable outcome appear when the depressive give way to expansive delusions. These are rather scanty and weak. The patients believe that they have become wealthy, have been endowed with some special powers, have been called of God, and can heal disease. These ideas rarely influence the conduct to any extent. The patients sometimes regard those about them as important personages. Other favorable changes are abatement of the excitement with retention of the delusions, and the appearance of silliness, while depressive ideas are maintained. Fifteen per cent. of the cases which recover tend to recur, but in these the first attacks are very light.

Treatment. — The first essential is the establishment of a "rest cure," which should include the removal of the patient from irritating persons as well as objects. It is necessary in most cases that the patients be confined in bed with short intermissions, with sufficient and constant attendance. In very light cases a suitable change may be found in removal to a different boarding-place or into the associations of a happy family. It is decidedly not advisable to attempt distractions, such as might be afforded by long journeys, sight-seeing, and constant company.

Next to forced rest in bed comes nutrition. The food should be nutritious, given in small quantities and at frequent intervals. Monotony in diet should always be avoided by consulting the tastes of the patient. Careful regulation of the intestines usually improves the appetite. Extreme anxiety and restlessness often necessitate artificial feeding by stomach or nasal tube in order to maintain nutri-

tion. Insomnia, which is troublesome and often difficult to overcome, is best relieved by warm baths (ninety-eight to one-hundred degrees), which may be prolonged for an hour. These measures, well carried out, often render hypnotics unnecessary, the use of which is always inadvisable because of the prolonged course of the disease. Of the hypnotics alcohol is the most valuable. Of the other hypnotics, sulfonal and trional in ten to fifteen grain doses, the bromides, or paraldehyde one-half to one fluid dram are the most useful. Hot malted milk before retiring may aid in inducing sleep.

The distressing condition of anxious restlessness may be combated with opium or morphin in increasing doses. It should be given in rapidly increasing doses, even reaching fifty to sixty drops of the tincture of opium three times daily, which is later gradually reduced, as the restlessness subsides. This drug sometimes not only fails, but serves to aggravate the symptoms. Improvement from this source, if it is to occur, appears rapidly. Suicidal tendencies necessitate careful and constant watching, as melancholiacs are the most difficult to thwart in their attempts at suicide. This care must be as strenuously observed until recovery is established. The rest in bed should not be too prolonged; later it is best that it be gradually replaced by short drives or walks, combined with daily change of scenery.

The psychical influence which may be constantly exerted over the patients by those in attendance is of the greatest value in alleviating distress, modifying the delusions, and relieving the anxiety. For this reason the manner should be gentle, friendly, and assuring, and attempts should always be made to lead the thoughts of the patient away from their depressive ideas. Visits from relatives are

deleterious in the height of the disease. Finally, it is of utmost importance that the patients be kept under observation and treatment until thoroughly recovered. A safe index of this may be found in the insight into the disease and the return of sleep and nutrition to their normal state.

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PRESENILE DELUSIONAL INSANITY

THERE is a small group of cases appearing during involution which are unlike either melancholia or senile dementia, partaking more of the characteristics of dementia præcox. It has been tentatively differentiated and characterized by the *gradual development of marked impairment of judgment, accompanied by numerous unsystematized, hypochondriacal, and persecutory delusions, and greatly increased emotional irritability.*

Etiology. — The psychosis is rare, occurring only twelve times in ten years' experience. The majority of the cases are women, in whom the disease appears between fifty-five to sixty-five years of age; while in men it occurs about the fiftieth year. There seems to be marked hereditary predisposition to the disease. As no other reasonable cause can be assigned, it is assumed that we have to do with a disease of premature senility on the basis of a morbid predisposition.

The fact that the persecutory delusions of the genuine senile presents many similarities supports this view. However, a more extended experience is necessary to determine if this is a particular disease process.

Symptomatology. — The onset of the disease is gradual, with a change of disposition. The patients at first become quiet, seclusive, discontented, moody, suspicious, and irritable. Delusions gradually appear which at first are quite vague and transitory, but later become more persistent and assume definite form. Among the first delusions to

arise are those of a *hypochondriacal* nature. The patient complains of the most varied and changeable nervous sensations and pains, spasmodic twitchings, vertigo, troubled dreams, debility, malaise, roaring in the ear, etc., reminding one very much of hysterical complaints. These ideas, however, usually become more senseless, when the patients state that the spine is dried up, the brain shrunken, and all strength departed.

Other delusions apt to appear are those of *persecution*, which often are quite fantastic. The patients claim that their clothing has been exchanged or stolen; that articles of furniture have been removed and others of less value substituted. There are thieves about. They suspect poison in the food; accuse the physician of trying to get rid of them, of behaving in an obscene manner, of removing the womb, or making them ill for the purpose of studying the case. The husband believes that the wife is dosing him secretly. One patient had her sofa taken apart because there was some one concealed in it who wanted to blow up the house.

Delusions of *infidelity* are apt to be a very prominent feature. The husband is accused of eyeing women on the street, of flirting with every one he meets, of caressing the servant, and receiving letters from the schoolmates of his daughter. He arranges to meet women whenever he leaves home, and has intercourse with every one possible. The husband is suspicious of his wife because she leaves him at night, and seems surprised and alarmed upon his return home.

It is characteristic of all these delusions that they are exceedingly unstable. They spring up at one moment, are abandoned in the next, and again recur in another form. Many patients admit that they might have been

mistaken and that they are sick, but in reality they fail to appreciate the senselessness of their ideas. Perhaps a half-hour later you will find them in the greatest distress because they have been poisoned, or because some one has hidden under the bed. They surely will die; a peculiar feeling about the heart indicates that their son must be dead. A soothing word usually suffices to quiet them and dispel all apprehension.

Hallucinations accompany the delusions in only a few cases. The patients perhaps are threatened, or hear strangers boast of intercourse with their wives. The cries of their ill-treated children reach them. At night they may see dark forms stealing out of the room, or feel some one lying beside their wives. It is a noteworthy fact that the patients do not make further attempt to intercept the guilty parties. If a search is instituted and they fail to find any one, they simply express anger because connubial infidelity was violated with such shamelessness and slyness in their own presence.

Consciousness is unclouded and orientation unimpaired. Thought is coherent, but judgment shows a marked weakness, noted in the retention of the most fantastic delusions, while the consciousness of the patient is perfectly clear. He cannot see the senselessness of the delusions; while he allows himself to be persuaded, he cannot be convinced. The memory for remote events is unimpaired. However, in his narration of his delusions, he adds all sorts of embellishments and misrepresentations.

The *emotional attitude* at first is one of depression and fear; occasionally it leads to suicidal attempts. Later there usually appears some excitement and irritability. The patients then talk a good deal, make verbose complaints, stir up boisterous scenes, fly into violent passion,

and are abusive, but they are usually quieted without difficulty. They sometimes laugh and cry without cause.

The *conduct* is characterized by all sorts of senseless actions. In accord with their delusions many patients run about from one physician to another, and solicit much advice without attempting to follow any of it. Some stop eating, withdraw from their associates, destroy everything within reach, and become violent. Jealousy leads to strict surveillance of the husband or wife. The servant is sent out in the search of them; torn letters in the waste basket are placed together in order to obtain proof of guilt, and the supposed seducers may be publicly accused. One patient went to the police to have a young unmarried lady placed under surveillance.

Course. — With the advance of the disease the delusions become more senseless; the patient claims that the wife and children are being tortured, the son nailed to the floor, or suspended on a fence. Nightly the wife wanders about from one place to another, and every one talks about it. Female patients believe that their husbands have intercourse with their own children, and even with other men, disguised as women. They become aware of this by sensations in their own body whenever they are deceived. The precious Lord proclaims everything, speaks to the patients, lies near them in bed at night like a shadow. Persons and environment are changed; their own bodies are disfigured and influenced. Many patients for that reason remain in seclusion, veil themselves, sometimes refusing to speak and then suddenly becoming very friendly and communicative. These delusions change frequently, even temporarily falling into the background, although some general signs of them are constantly re-

curing. But in spite of progressing mental deterioration, the patients do not become incoherent.

Diagnosis. — By some these cases might be regarded as *paranoia*, but they certainly differ from *paranoia*, in that the delusions are not systematized and there is no attempt made to trace their origin to a definite source. The persecutors remain indefinite or change frequently, and the suspected consorts are not regarded as enemies, but are frequently considered as having been seduced. Moreover, the patients do not establish any broad basis for action from out of their delusions, and except for their occasional violent outbreaks, they do not treat the supposed persecutor as especially hostile; they associate with their faithless wives, in fact even force themselves into their company, and they quickly become agreeable and friendly toward those persons whom they have just previously suspected and accused. They often like to remain in the hospital in spite of complaining of all sorts of persecution, and take pleasure in protection which is afforded them there. Finally, the delusions do not continue stable, but change frequently and sometimes even in a short time. Their conditions of excitement seem to depend less upon deliberation than their emotional vacillations.

By others this group of cases might be considered as belonging to *dementia præcox*, which undoubtedly occurs at this age, although not frequently. The only consideration against this view is the fact that the patients do not present catatonic symptoms. The resistance, mutism, refusal of food, and excitement, occasionally manifested, are not simply compulsive or instinctive, but depend upon the delusions or the moods. There is no emotional obtuseness; on the contrary, the patients continue irri-

table while disturbances of judgment greatly predominate over that of the emotions and actions.

Prognosis. — The outcome is never characterized by profound dementia or confusion of speech, but by a moderate deterioration, with isolated, changeable, and incoherent delusions. Recoveries or marked improvement are not likely to occur.

Treatment. — There is no special method of treatment applicable here. Many patients who are a source of trouble outside need hospital treatment, in which case neither the discipline nor the lack of freedom encountered there cause them annoyance. Some patients are able under favorable conditions to remain at home.

SENILE DEMENTIA

SENILE dementia includes *those forms of mental disease appearing in the period of involution, depending upon sclerosis of the brain, the primary and fundamental symptom of which is progressive mental deterioration.*

It appears in three forms, simple senile deterioration, senile confusion, and senile delirium. A single case in its course may present the picture of any one or all of these forms.

Etiology. — The disease may appear at any time during involution, but is encountered most frequently between sixty and seventy-five years of age. It occasionally makes its appearance after some acute disease or mental shock. Defective heredity occurs in about fifty per cent. of cases. The most important etiological factor is mental and physical overexertion with indulgence in excesses.

Pathological Anatomy. — All advanced cases of senile dementia present, both macroscopically and microscopically, atrophy of the nerve substance. The brain weight is from two hundred to five hundred grams below normal. There may be compensatory thickening of the cranium. The cerebrospinal fluid is usually increased, producing what is called hydrocephalus ex-vacuo. The dura is usually adherent to the calvarium. The Pacchionian granulations are increased in size. Pachymeningitis interna hæmorrhagica is often present, and sometimes to an extreme degree. The pia is somewhat thickened uniformly over the entire cortex, contains many corpora amy-

lacea, and is almost always edematous. The convolutions are narrow and shrunken, and the gaping fissures are filled in with edematous pia. Minute hemorrhages are often found in the cortex and frequently in the corona radialis and basal ganglia. Foci of softening are often present in the cortex. In the corona, basal ganglia, and especially in the lenticulate nucleus, there is a degeneration of the nervous tissue about the vessels, which, with edema, gives rise to a spongy appearance, called *état criblé*. The ventricles are much dilated and ependymal wall thickened, but rarely granular. The choroid plexuses usually present various stages of cystic degeneration. The cerebral arteries exhibit arteriosclerosis with miliary aneurisms. These arterial changes may be either diffuse, or may involve any one of the smaller or larger arteries entering the cortex and the subcortical substance. The sclerosis of the nervous tissue is intimately associated with these arteriosclerotic changes.

Microscopically, there is an atrophy of the cortical neurones and a proportionate diminution in the volume of the fibres in the corona. The neurones of all layers are involved. In the cell body the pathological change most frequently encountered is the chronic change of Nissl (Figure 6, Plate 4). The cell body becomes shrunken, the Nissl granules staining deeply; the achromatic substance also takes on the stain, becoming ill defined, the nucleus is elongated, sometimes triangular, its contents being stained. The processes of the cell become narrow, tortuous, and threadlike. The neuroglia cells are much increased in number. The physiological increase of the yellow pigment in the cell bodies, accompanying advancing age, here goes on to a pathological condition in many cases, comprising pigmentary degeneration. The spinal cord

presents a similar atrophy in its ganglia cells and fibre tracts. Calcareous plaques are sometimes found in the pia.

The other organs of the body present senile atrophy and arteriosclerotic changes. The condition of the heart with chronic endocarditis and fibroid changes in the myocardium is of importance, as it interferes with cerebral circulation.

Symptomatology. — *Simple Senile Deterioration.* — Senility brings with it, for every one, a certain degree of mental and physical deterioration, so that the border line between physiological senility and the state of mental alienation cannot always be a sharp one. Of the individual symptoms, failure of *memory* of recent events is the most prominent. The patients forget where they have placed things, fail to realize that they are repeating the same remarks that they made yesterday or a few hours ago, forget and cannot recall the names of recent acquaintances. The present seems to pass without leaving a trace. Defective attention is in part accountable for this. The patients are also unable, on this account, to follow the trend of anything read or spoken to them, and overlook details. Almost nothing new is acquired, which leads to a dearth and similarity in the content of thought. The memory for events of early life is well retained, which in advanced cases forms the entire content of voluntary speech. Gaps of memory are very often made good by fabrications, when all kinds of fictitious events are mentioned, the existence of which for the patients immediately vanishes.

There is a progressive defect of *apprehension*. The patients fail to understand the connection of things; business and the affairs of society are not clearly and readily

comprehended, leading to errors in formation of opinions and in the motives for action, that which we call impairment of judgment. Here we find the basis for many of the *delusions*. These are mostly of a persecutory character; the patients believe they are being neglected, little things are done to annoy them, and finally they are deprived of property. Lack of insight into their increasing infirmity, necessitating the appointment of a conservator, leads to other ideas of persecution. Expansive delusions may also appear. Egotism becomes marked and self-interest with the gratification of personal whims precede everything. This may advance to genuine avarice, the feeling of greed overwhelming even filial affection.

In *emotional attitude* there is a variation between elation and depression, depending in a great part upon the content of the delusions; but indifference and lack of sympathy are prominent characteristics. The patients fail to enter into the sorrows and joys of those about them, and feel no grief at the loss of dearest friends. They are also irritable, peevish, and discontented. The states of the emotional attitude are both superficial and transitory; extreme and tearful sympathy or silly happiness may be aroused on the slightest pretext.

In *actions* the most noticeable features are delirious restlessness at night and silly, childish behavior. Some of the patients display a certain stupidity, with a loss of energy and a tendency to sleep the greater part of the day. Others exhibit restlessness with some exaltation, and a feeling of confidence which leads them into foolish business schemes and outlandish adventures. Associated with this activity there is often present increased sexual feelings, causing the patients to enter into improper sexual relations and in extreme conditions to expose them-

selves. Other patients wander about aimlessly, busy themselves with trifles, make foolish plans, and indulge in excesses. They may grumble, curse, and abuse in the vilest terms. The restlessness at night consists of getting out of and disheveling the bed, wandering about the house, and rummaging chests and closets without purpose. Patients are unable to care for themselves properly, and are dirty about their clothing.

Senile Confusion. — The second form represents a deeper grade of deterioration, and as such often appears as the final stage in simple deterioration. Senile dementia, however, may appear at first and run its full course as senile confusion. This form is characterized by great disturbance of apprehension, with clouding of consciousness and disorientation. The patients mistake those about them for old acquaintances, have not the least conception of where they are, the season of the year, or the date. They undress at midday, thinking it night, and call the physician by their husbands' names. They say they are twenty-five years of age, have had twenty-five children, the oldest of which is twenty-five years, that they still have their menses, and are now pregnant. They are easily distracted and show a marked *limitation of thought*, with a constant reversion to the same senseless talk. Many changing *delusions* are expressed, both of depression and elation, and sometimes of a nihilistic nature. Hypochondriacal ideas are prominent; by leaning against a radiator a hole has been burned through the flesh into the lungs, causing the heart to cease beating; they cannot speak, eat, or sleep; nothing has passed their bowels in weeks, and the liver has rotted away. They are to be poisoned or murdered. On the other hand, they imagine that they possess much property, hold an important position, or are in communication

with God. Many of these ideas are embellished with numerous fabrications. *Hallucinations* of sight and hearing are frequently present.

In *emotional attitude* the patients are sometimes apprehensive and dejected, sometimes irritable, and at others elated and happy. In actions they display more or less restless activity, which is especially marked at night. They regularly tear and throw about their bedding, creep about the room, picking into the corners, destroying and smearing their clothing, or laugh, sing, and run about in a silly manner. The patients are very untidy, and incapable of caring for themselves. There is great insomnia, and very little nourishment is taken.

Senile Delirium. — This form is characterized by a more acute onset and a short course with great disturbance of comprehension, incoherence of thought, and delirious actions. It often appears as an episode in the course of senile deterioration. When occurring independently, it frequently follows an acute illness or some mental shock. Patients suffer from many *hallucinations* of sight and hearing. They hear voices, threats, singing, see the devil, or crowds of men pressing upon them with knives. They are anxious and restless, claiming that they are in the world below, surrounded by mighty powers, are bewitched and poisoned, the house is being flooded, and huge boulders rolled about the room. They are completely disoriented. The speech is irrelevant, incoherent, and flighty, often containing incomplete and unintelligible words. Echolalia is rarely observed. There is great activity; they rattle doors and windows in fear, shout for help, refuse food, resist, tear up the bedding, and crawl about the floor. The occupation delirium is frequently encountered here, when the patients act in pantomime, addressing

imaginary audiences, tending cattle, or driving horses. Insomnia is extreme.

The course of the delirium is short, and presents many remissions, with more or less complete return to clear consciousness. On the other hand, the delirium may reappear after short or long intervals, and run a fatal course, or it may pass over into a state of anxious unrest. This state of unrest may persist, or in time entirely disappear. In unfavorable cases the delirium becomes extreme, leading to collapse from loss of physical strength, and death by some intercurrent disease.

Physical Symptoms.—In senile dementia there is insomnia, anorexia, and general fine tremor, which is to

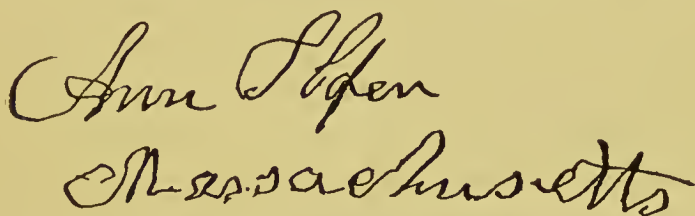


FIG. 5.—SENILE HANDWRITING

be distinguished from the tremor of the paretic by the numerous irregularities in the individual movements, which difference is immediately discernible in the handwriting. The accompanying illustration of the handwriting of the senile demonstrates this characteristic, and when compared with the handwriting of the paretic readily shows the difference between the two. There is also general muscular deterioration, noticeable in the increasing muscular weakness and the wrinkled and faded countenance. Speech disturbances are frequent, both aphasic and paraphasic. The speech is, in contrast to that of paresis, rarely hesitating. Hyperalgesia, paræsthesia, ringing of the ears, and *muscæ volitantes* are frequently present.

Vertigo is rarely absent. The tendon reflexes are increased, and sometimes only on one side. The skin reflexes are abolished and the pupillary reflexes sluggish.

Associated with the changes due to diffuse lesions of the brain, there occur in very many cases apoplectiform attacks. These may be simply attacks of vertigo, but more often are conditions of prolonged somnolence or coma, accompanied by general paresis of the muscles. These attacks are to be distinguished from apoplexy by the absence of hemiplegia. It is a characteristic feature of these attacks that, during convalescence, the paresis in the limbs is associated with weakness of the sphincters. Genuine apoplectiform attacks with hemiplegia are also of frequent occurrence, while the epileptic attacks are encountered in rare cases. The radial and temporal arteries usually give evidence of sclerotic changes, and the pulse is slow and irregular.

Course. — The course of the disease is a progressive one to absolute dementia and death, similar to dementia paralytica. The duration is from three to five years. An acute course may last but a few months.

Diagnosis. — The gradual transition from the symptoms of pure senility to simple senile deterioration offers some difficulty in the diagnosis. This is of extreme importance from a legal standpoint, as these cases cause more litigation than any other. The presence of delusions and of excitement should leave no doubt as to the presence of a psychosis. Senile dementia may be differentiated from melancholia by the appearance of hypochondriacal, nihilistic, and other silly delusions, and the disproportion between the defect of apprehension and emotional disturbance. *Dementia paralytica* has already been differentiated under that disease. The senile delir-

ium, except for the underlying basis of deterioration, does not differ from the delirium encountered in other psychoses.

Treatment. — Naturally the treatment is limited to attention to the physical needs, proper hygiene, and improvement of sleep by hypnotics. In cases where there is great anxiety, it can be relieved by use of morphin or opium. (See p. 265.) In conditions of delirium, prolonged warm baths, artificial feeding by stomach or nasal tube, with the addition of alcohol, and in case these measures fail, padded beds or rooms, are indicated. The mild cases are best cared for at home.

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MANIC-DEPRESSIVE INSANITY

THIS term is applied to that mental disorder which recurs in definite forms at intervals throughout the life of the individual and in which a defective hereditary endowment seems to be the most prominent etiological factor.

The greater number of cases usually called recoverable mania, simple mania, simple melancholia, periodical mania, periodical melancholia, and circular insanity belong to this group. These diseases, viewed according to the old conception, always presented difficulties because of the frequent occurrence of conflicting symptoms. In periodical melancholia, there appeared evidently maniacal symptoms, and the picture of circular insanity was frequently marred by the appearance of two successive maniacal or melancholic attacks. Any series of ten cases of periodical mania or periodical melancholia, in each of which there has been at least three attacks closely observed, discloses such varying features that one is forced to conclude that these manifestations, inharmonious with the old conceptions, are not accidental, but phases of one disease process. The constant recurrence of certain fundamental symptoms in all the attacks, the uniformity of their course and outcome, and the occasional intimate relation of different forms of the disease, where one form passes over either gradually or rapidly into another, has led to the conclusion that the individual attacks appear in one of three forms, the maniacal, the depressive, or the mixed.

The *maniacal forms* are characterized by psychomotor excitement, flight of ideas with sound associations, great

distractibility, pressure of activity, happy though unstable emotional attitude, unstable delusions, some hallucinations, and comparatively little clouding of consciousness.

The *depressive forms* are characterized by psychomotor retardation, absence of spontaneous activity, dearth of ideas, dejected emotional attitude, prominent delusions and hallucinations, and usually clouding of consciousness.

The *mixed forms* present a combination of the symptoms characteristic of each of these conditions.

Such a conception of the disease, with characteristic fundamental symptoms, makes its recognition possible immediately at the onset, without having to wait for the occurrence of more than one attack.

Etiology. — Manic-depressive insanity comprises from ten to fifteen per cent. of admissions to insane hospitals. The disease is more common in women than in men. Of the etiological factors, defective heredity is the most prominent, occurring in from seventy to eighty per cent. of cases, a larger percentage than in other mental diseases, excepting in imbecility and idiocy. Previous to the onset of the psychosis, many patients have displayed peculiarities, some having been abnormally bright, while others have been eccentric or overpious. Physical stigmata may also be present. Individual attacks, except the first, almost always appear independently of external causes. Of external causes, besides gestation, alcoholic excesses are perhaps the most prominent; others are mental shock, deprivation, and acute diseases. In the greater number of cases, the first attack appears before twenty-five years of age, and in less than ten per cent. after the fortieth year, in both of which periods women

predominate. The first and subsequent attacks often occur during pregnancy and puerperium; but it is a noticeable fact that these do not cease with the period of childbearing.

Pathology. — Thus far observation has failed to reveal any characteristic anatomical pathological changes. This fact, together with the recurrence of individual attacks, mostly independent of external causes, has led to the conclusion that the disease depends upon a neuropathic basis, which in the vast majority of cases is hereditary.

Meynert has offered a theory of the pathological basis of the disease in explanation of those cases which alternate from a maniacal to a depressive attack, or *vice versa*. He observed that in the maniacal states there was a full hard pulse, flushing of the face and extremities, from which it was inferred that there was also a hyperemia of the brain. In the depressive states the opposite was true, an unsteady weak pulse and vascular spasm of the extremities, and probably anemia of the brain. Upon these grounds Meynert advanced the theory that the disease was due to a vascular disturbance. The prolonged vascular spasm in the depressive states would naturally be followed, as the result of fatigue, by vascular relaxation and cerebral hyperemia, with a clinical picture of mania. This theory is inadequate, because it does not establish a basis for the mixed states. A theory presented by Meyer, which explains the disease by a trophic vascular disturbance, is still more improbable.

Symptomatology. — The *apprehension* and *comprehension* of external impressions show more or less disturbance in the maniacal forms, except in the lightest — hypomania. This disturbance is due largely to the great *distractibility* of the attention. The patients lose the ability to select

and elaborate their impressions, because each striking sensory stimulus forces itself upon them so strongly that it absorbs their entire attention for a moment, while the next instant another stimulus takes its place. Their attention may be held for a moment by holding objects before them, but it is quickly distracted by something else. Under these circumstances, consequently, the environment is never fully apprehended, and the picture remains disconnected and incomplete, although there is no serious disorder of the perceptive process. The central susceptibility to external impressions is, however, diminished, as is seen in the remarkable insensibility to heat and cold, to hunger, and to pain. In the depressive forms apprehension is more manifestly and extensively disturbed; especially is this true in stupor. Even in the lighter forms the patients are unable to elaborate and comprehend well their impressions. Distractibility of the attention may be noticed, and even apathetic patients may be compelled to follow striking impressions.

The *consciousness* in the maniacal forms is not clouded except in the more severe maniacal conditions and in the delirious form, when the hazy impressions and confused ideas lead to disorientation. One should not interpret as disorientation the capricious and playful use of false names for the physicians, attendants, fellow-patients, and even surrounding objects, unless from other sources it is perfectly clear that they do not comprehend their environment. In the depressive phases the disturbance of consciousness is more pronounced, particularly in stupor, when the patients for months may fancy they experience the most extraordinary and dreamlike adventures.

Hallucinations are very rarely present except in the delirious form, and in the more marked stuporous condi-

tions, but even here they are neither a prominent nor persistent feature. *Delusions* also play an unimportant part in the maniacal forms. When present they are unstable, and appear in the form of playful boasts and exaggerations. A few patients elaborate delusions of persecution, especially directed against the family, or of poisoning, which are held for some time. In great excitement many variable expansive ideas may be expressed. In the depressive phases, on the other hand, the delusions of persecution and of self-accusation, as well as hypochondriacal ideas, are usually present. These delusions rarely become fantastic.

There is usually some *insight* into the disease; but while the patients appreciate that they have undergone a change, they attribute it to misfortune and abuse rather than to mental illness.

The *disturbance of thought* is a prominent symptom. In the maniacal forms a definite line of thought cannot be followed out; ideas pass abruptly from one subject to another, and the line of discourse is lost in a mass of detail. A short question may be answered correctly, but with the addition of a host of details and side remarks that have only a distant relation to the subject. It is impossible for the patients to relate any event coherently without frequent inquiries and suggestions on the part of the listener to draw him back from his digressions. There is a lack of voluntary guidance of the train of thought, hence there are quick leaps in the succession of ideas influenced by objects that happen to come into the field of vision, or by sounds caught up from the surroundings. On the whole, there is a multitude of ideas, but they are not well connected. Ideas seem to crowd each other, but in reality they do not. There is no controlling goal idea. The

association of ideas follows along the tracks most frequently used, especially those that play an important part in daily expressions, such as bits of slang and common phrases. The resulting incoherence of thought gives rise to the so-called *flight of ideas*. Observation of external objects may seem to be very accurate and complete, but in reality it is superficial. A striking object attracts the attention, is apprehended, and starts a train of thought; but before this has proceeded far something else obtrudes upon the sensorium, and another is started. In spite of appearances, genuine thought is retarded. Instead of an acceleration of the train of ideas, there is only flightiness and an instability. Ideas are rapid, but they do not crowd one another. There is an abundance of words, not of ideas.

In the depressive and mixed forms there is *retardation* of thought. The process of thought is greatly impeded, and there is really a dearth of ideas, causing the patient to appear stupid. The reaction to questions is apt to be monosyllabic. Such patients have been regarded as demented, until closer observation has demonstrated that there is no real deterioration.

The *emotional attitude* in the maniacal forms is more or less elated and happy. There is a feeling of well-being with a tendency to joke and to make facetious remarks. Expressions of the emotion are unrestrained. Irritability is prominent, giving rise at times to outbursts of anger from trivial causes, but even more characteristic are the rapid changes in the emotional attitude; in the midst of joy patients become tearful, complaining of abuse and misfortune; in spite of profound misery they may burst out into boisterous laughter. These varying states appear and disappear with the greatest rapidity. Depression of

spirits may appear even for a few hours, indicating a close relationship between the maniacal and depressed phases. In this form depression is the predominating feature, and there is despair, gloom, and often anxiety; but even in their dejection one sometimes encounters moments when there are feeble attempts at laughter and even gayety. The mixed forms present stupor with silent mirth, or restless mischievousness with anxiety.

The most prominent symptoms are found in the *psychomotor sphere*. The increased facility for the conveyance of stimuli into action gives rise to *pressure of activity*. Every sort of impulse leads to an action, completely inhibiting all normal volitional impulses, or even if a volitional action is begun, it is overwhelmed before half accomplished. Furthermore, almost imperceptible impulses excite the greatest variety of movements, which are executed with unusual energy. In the lightest forms this appears a characteristic restless activity and an excessive display of energy over trifles. If the disease is more severe, the actions become disconnected. New impulses intrude before any one object can be accomplished. In the severest excitement the actions change as rapidly as the ideas, and are quite aimless. The actions, however, depend upon and bear a definite relation to the ideas and emotions. The intensity of the motor excitement depends largely upon external stimuli, the removal of which offers a substantial relief. Unrestrained activity tends to increase the excitement. The ready release of the motor impulses perhaps accounts for the unusual absence of fatigue in these conditions, which may persist for weeks or even months without any signs of exhaustion.

This psychomotor pressure of activity is prominent also in the field of *speech*. This is important in the produc-

tion of the flight of ideas. The easily aroused motor speech dispositions have a stronger influence in directing the train of thought than the ideas arising from purely intellectual processes. Instead of a logical sequence of ideas, we find that the motor coördinations determine their succession; thus we encounter those associations common in the everyday life, set phrases, slang, and rhymes, and finally predominance of pure sound associations, when we hear such productions as "Sam, jam, bang, slam, hell, shell, bells," etc. Silence is impossible. The patients prattle away and shout at the top of their voice, scream, declaim with many gestures and in a pompous manner, perhaps ending in unrestrained laughter, or they sing now softly, now slowly. The following is a sample of the maniacal production:—

"I was looking at you, the sweet voice, that does not want sweet soap. You always work Harvard, for the hardware store. Here is the right hand, the hand that they shot off yesterday. The love of God don't win gray hairs. I don't care if I am nineteen, my father taught me to love. Neatness of feet don't win feet, but feet win the neatness of men. Run don't run west, but west runs east. I like west strawberries best. Rebels don't shoot devils at night. For three years I got over seven dollars a month and some old rags. Take your time and be not disobedient, be grateful and when judgment day comes. God's laws are all right, but Royal Baking Powder is compressed yeast. Women should never chew gum. Women should never smoke. Women should mind their own business. Fish-hooks are between the American flag, red, white, and blue, Fourth of July. You must pay for your own fiddler, Prudence. I am no tobacco chewer, I am no street walker, I am vaccinated, but McKinley does not

win. My father is a Democrat. He had no work for three years."

Such incoherence is not the outcome of an excessive repletion of ideas, but results from an inability to give direction to the train of ideas. A normal individual at times might give expression to a similar production if he could utter the sequence of ideas as they came into his mind. In the disease picture this ideomotor excitability regularly leads to the expression of every idea that presents itself.

The letter-writing of maniacal patients shows with equal clearness the same disturbance. Single phrases and sentences may be well started, but are soon resolved into a senseless enumeration of catch phrases, bits of slang, and rhyme. The script is coarse and bold, while underlining, overwriting, and punctuation marks predominate.

The psychomotor field, in the depressive forms, presents a *retardation of activity*, due to the slowness of conveyance of sensory and ideational stimuli into impulses. In the mildest degree this retardation appears as a deficiency in the power of resolution. Actions may not only be performed slowly, but even after being started may fail of completion. The simplest movements, such as walking and talking, are performed very slowly and without energy. Unless extreme, the retardation may be overcome under extraordinary circumstances, such as impending danger, when there may be display of considerable energy. In the severest forms the retardation leads to a complete abolition of all voluntary movements, leaving the patient in a condition of stupor, and even the movements of expression are dominated by this same condition.

The above description of the symptomatology serves as a picture of the disease process as a whole. The disease

picture as it appears in the different phases needs a more detailed description for its recognition. Further study may lead to a different conception of the three large groups, — the maniacal, depressive, and mixed, — but at present we must regard them as phases of one disease process. Each of these groups has still further been divided into smaller groups, according to the intensity of the symptoms: maniacal forms, comprising hypomania, mania, and delirious mania; depressive forms, simple retardation, retardation with hallucinations and delusions, and stuporous conditions; mixed forms, maniacal stupor, stuporous mania. It is a question whether this subdivision is justified, since we find many cases in which the intensity of the symptoms varies, and a patient in one attack may pass through the whole cycle of changes in all three groups.

MANIACAL STATES

Hypomania

This, the mildest maniacal form, has also been designated mania mitis, or mitissima, and folie raisonnée.

The onset is often gradual. After a short period of indisposition there appears an unusual activity. The patients are up at early morning, bustling about with unnecessary business, take long walks, and give much time to pleasure. They develop freaks of conduct: devote much time to family genealogy, attempt journalism, purchase property, begin to build, write many letters, and renew old friendships. The actual capacity for work, however, is much diminished. They lack perseverance, become negligent, and apply themselves only to that which is agreeable. They show a morbid tendency to attract

attention; they dress in a conspicuous manner, wear flowers, and use perfume. A sedate old merchant persisted in wearing a red tie, silk hat, colored hose, and tan boots.

There is complete absence of insight into their condition. The patients justify their actions against criticism in a most persistent way, and never fail for plausible excuses. In the realm of ideation they show a *moderate flight of ideas*, and this is more especially noticed in letters. They shift abruptly from one subject to another, and are quite unable to bring a thought to a logical conclusion. They are very talkative, the content of conversation being centred about commonplace affairs, their experiences and difficulties. They revel in minute details, and often distort the facts with exaggerations and frequent misrepresentations. In the highest grades there is a striking lack of coherence in the train of thought. The patients are unable to arrange logically a series of ideas without abrupt transitions from one subject to another. Upon effort they may be able for short periods to gain the mastery over their incoherent thoughts, as well as over their excessive activity. They may appear brighter and clearer minded than usual because of their ability to grasp remote resemblances, but in reality they cannot make use of any valid comparisons.

The memory is slightly inaccurate only for recent events. Self-esteem is very prominent; they boast of their own deeds and show a proportionate lack of appreciation for those of others. They believe themselves misjudged or falsely confined, as they never were more healthy or capable of work. Usually, in their estimation, the relatives and friends, or those who have been instrumental in their confinement, are the ones in need of hospital treatment.

The *emotional attitude* is usually elated. Patients are happy, cheerful, and often exuberant. They derive great pleasure from their associations and undertakings. They take great delight in making facetious remarks and in taunting helpless patients. They are jovial and friendly. On the other hand, they may show great irritability. When thinking of their restraint they may become discontented and grumble, and when opposed may show violent fits of abusive anger. They are completely under the control of sudden impressions and emotions, which quickly acquire an irresistible power over them.

Physical Symptoms. — The number of hours of sleep is cut short by late retiring and early rising, but their actual sleep is profound. The appetite is regularly improved, and the weight may increase. The skin appears healthy, and the movements are strong and elastic.

The *course* of this form is usually uniform except where hypomania appears only as an episode in the other forms. The improvement is very gradual, and often accompanied by remissions. The duration is seldom less than several months, and sometimes over a year. This condition often follows pure mania.

Mania

The onset of the purely maniacal condition is almost always sudden, following a short period of headache or malaise. A few days of simple depression may precede the onset. The patients rapidly develop *great psychomotor restlessness, with a pronounced flight of ideas, clouding of consciousness and disorientation, great impulsiveness, transitory expansive delusions, and occasional hallucinations.*

The activity of mania is much greater than that of hypomania. Patients cannot sit or lie still; they run back

and forth, dance about, turn handsprings, sing, shout, and prattle incessantly, make all sorts of gestures, tear off clothing, pull down the hair, clap the hands, smear the person and room with grotesque designs, ornament themselves in the most fantastic manner with clothing which has been torn into strips. Everything that they can lay their hands upon, from watch to shoes, is taken to pieces. Bits of straw and pieces of stone, glass, and food are hoarded to plaster up a crevice in the wall or to pack a keyhole. In the absence of tobacco all sorts of material are used, — leaves, and bits of thread, and even dried feces. They are especially apt to cram the nostrils and ears with foreign material, and to carry bits of glass, nails, stones, and nutshells in the mouth. A patient secreted a four-inch nail and an extracted tooth in his mouth for months.

They are quarrelsome and domineering, or mischievous and playful. Because of great irritability, the most trivial affairs may lead to extreme violence and abuse. Female patients are more apt to show this tendency than male. Sexual excitement is manifest in shameless masturbations, exposure, and demands for intercourse; by indecent attitudes and insinuating remarks.

Consciousness is more or less clouded. This is seen in partial or complete disorientation. Patients know the time and where they are, but they perceive only in a superficial way the events of the environment. Those about them are apt to be mistaken for old acquaintances. Sometimes they designate them as historical personages, as congressmen, public officials, or well-known millionaires. Apprehension and comprehension are greatly interfered with by the extraordinary *distractibility*; sounds from the surroundings are caught up and woven into their speech; an object held by the physician, or parts of his clothing,

attract the attention and quickly lead the thought in another direction, which is just as abruptly left before the thought is half expressed, aiding in the production of a genuine flight of ideas. They understand what is said to them, and are able to give short answers to questions which are correct and pertinent. In this way facts concerning their past lives and occupation can be obtained by piecemeal.

Hallucinations are apt to play an unimportant part and are transitory and changeable. Sometimes faces are seen on the wall, shining objects appear on the ceiling, and flash-lights are seen as signals in the sky. Noises are heard, floors creak, locomotives whistle, bells ring, and poisonous vapors are set free in their rooms at night. Sometimes they feel electric shocks.

Delusions, mostly expansive, seldom depressive, are prominent. They present manifold changes, are transitory, and embellished by numerous fabrications. The patients claim that they are royal personages or generals, that they have supernatural strength, can produce planets, and are related to God. Many of these ideas are recognized by the patients as pure fabrications, are expressed with a laugh, and forgotten the next moment. A few single delusions may be adhered to for a long time. Very often a patient shows some insight into his disordered condition, admitting that he is crazy and cannot control himself.

In *emotional attitude* the patients are mostly happy and elated. Irritability, on the other hand, is very marked. Trifling affairs, such as interference or contradictions, may lead to outbursts of passion with profane abuse, assaults, or destruction of the clothing or other objects. The rapid changes of the emotions are still more characteristic. In

the midst of joy they begin to lament and shed tears at the thought of home, or because of the abuse which they claim to have received at the hands of their nurses. Frequently they show a very sudden change to a condition of passion and rage.

Physical Symptoms. — The sleep is more or less disturbed and nutrition suffers in spite of increased appetite. The weight always falls.

Course. — The height of the disease is usually reached in the course of a week or two, and in some cases within a few days. The intensity of the disease is fairly uniform, with only slight fluctuations. Occasionally there may appear a sorrowful and depressed emotional condition, with disappearance of the motor activity, or even a transitory stupor, indicating a transitory depressive phase. The improvement is very gradual; although for some time after there is comparative clearness, the patients are apt, under strain, to show a flight of ideas, and some increased activity. Even after apparent complete recovery, trying conditions, reverses and misfortunes, and more often intoxication can cause a recurrence of the symptoms. The duration extends over many months, and sometimes two or three years; in rare instances as long as five to seven years.

Delirious Mania

This, the most extreme of the maniacal states, is characterized by *considerable clouding of consciousness, intense psychomotor activity, great incoherence of speech, a high grade flight of ideas, numerous hallucinations, and dream-like delusions.*

The onset is sudden, following a few days of indisposition, uneasiness, and insomnia. The patients immediately develop the greatest restlessness, incessantly running about,

shouting and singing, disrobing, destroying everything within reach, becoming recklessly violent, and smearing themselves. At one moment they are praying, at the next cursing with the vilest language or singing an obscene song; at one time they are insulting in speech and action, and a minute later are profuse in apologies and distastefully affectionate. They chatter away, scream and stamp their feet, pound the window or door, race at the greatest speed along the corridor, mount the table and declaim in a loud voice with profuse and exaggerated gestures.

Their *speech* is incoherent, abounding in sound associations, rhymes, and numerous repetitions of single syllables and phrases, in which one can always detect many fragmentary references to objects in their environment. The attention usually cannot be attracted except momentarily, when a fragment of the desired response can be detected in the incoherent speech. Striking objects, such as a penny dropped on the floor, will divert the attention and the train of thought for a moment.

From the first the *consciousness* is greatly clouded, and disorientation is almost complete. The patients are thoroughly confused as to time, place, and persons; they mistake their environment, and even their friends. Dreamlike hallucinations and delusions appear. The *hallucinations* are numerous and are present in all of the sensory fields; they see beautiful sights, strange faces, and scenes of torture; hear distant music, ringing bells, cannonading, and the roar of wild animals. Their food has a peculiar odor and taste, and small objects crawl on the skin. They see fire and hear the crackling timbers.

The manifold changing *delusions* are both expansive and depressive; they are the "chosen ones"; have been

elected President; have wonderful power, can create and destroy nations, possess millions; they have lost all friends; are to be murdered; must enter hell; have been taken to an immense height and are now to be cast into the sea. Some are on trial for murder, or have been transferred to Mars.

In emotional attitude there are rapid changes between extreme happiness and profound distress, ecstatic joy and timidity, exuberance and apathy. Irritability is very marked.

Physical Symptoms. — The state of nutrition suffers profoundly because of the small amount of food taken and the great expenditure of energy. Occasionally there is a general muscular tremor. Sleep is greatly disturbed, and at the height of the disease is entirely lacking; the pulse is accelerated and the reflexes are exaggerated. Evidences of congestion of the head are sometimes noticed; the conjunctivæ are injected, the vessels of the head and face distended, and there is occasional profuse perspiration.

Course. — The height of the attack is quickly reached, usually within a few days or weeks, and the symptoms begin to abate at the third or fourth week. Short intervals of composure, varying from a few minutes to a few hours, during which the consciousness is clouded, suddenly appear and disappear. The improvement is rapid. The patients usually retain for some time residuals of their delusions and peculiarities of conduct, and are inclined to be irritable and distrustful. Finally in the course of a few weeks these signs entirely disappear. There is rarely any memory for the events of the acute stage of the psychosis. A fatal termination is very rare and usually occurs through some intercurrent disease, exhaustion, injuries, or infections.

DEPRESSIVE STATES

The depressive states are divided into three groups, — simple retardation, retardation with hallucinations and delusions, and the stuporous conditions.

Simple Retardation

This is the mildest form of depression ; it is characterized by *simple retardation* without either hallucinations or prominent delusions. The onset is generally gradual, except in a few cases, which follow acute illness or mental shock. Mental processes become retarded ; there appears gradually a sort of mental sluggishness ; thought becomes difficult ; the patients find difficulty in coming to a decision and in expressing themselves. It is hard for them to follow the thought in reading or ordinary conversation. They fail to find the usual interest in their surroundings.

The process of association of ideas is remarkably retarded ; the patients do not talk because they have nothing to say ; there is a dearth of ideas and a poverty of thought. Familiar facts are no longer at their command. It is hard to remember the most commonplace things. They appear dull and sluggish, and explain that they really feel tired and exhausted. They sit about as if benumbed, with folded hands and bowed head, exhibiting no initiative and rarely uttering a word voluntarily. What is said is uttered in low, inexpressive tones. Customary actions, such as walking, dressing, and eating, are performed very slowly, as if under constraint. When started for a walk they halt at the doorway or at the first turning-point, undecided which way to go. Although mentally retarded, consciousness is unclouded and the environment is correctly apprehended.

In the *emotional attitude* there is a uniform depression. The patient sees only the dark side of life. The past and the future are alike full of unhappiness and misfortune. Life has lost its charm; they are unsuited to their environment; are a failure in their profession; have lost religious faith, and seem to live from day to day in gloomy submission to their fate. They are disgusted with everything; do not care to live longer. They fear business reverses and begin to economize, even denying themselves and their families the necessities of life. Patients frequently express a desire to end their existence, but they seldom make a serious attempt at suicide. Insight is frequently present, the patients appreciating keenly that they are mentally ill.

The retardation may at some time during the course of the psychosis develop into a condition of *stupor*. The patients then lie in bed perfectly dumb, unable to comprehend their surroundings or to understand questions, and without expression of emotion, except in rare instances, when a look of anxiety or perplexity comes over the countenance. If able to answer questions, the response is exceedingly slow. When a question not having been readily answered is followed, even at quite an interval, by another, the questions may be answered in the order propounded, indicating probably that the disturbance is psychomotor rather than intellectual. The patients are unable to care for themselves. They sit helplessly before their meals, allowing themselves to be fed by spoon, and holding firmly whatever may be pressed into their hands. This stuporous condition disappears rapidly, leaving no memory of the events.

This form of depression runs a rather uniform *course* with few variations. The improvement is gradual. The duration varies from a few months to over a year.

Retardation with Delusions and Hallucinations

The second group is characterized by hallucinations and varied delusions of persecution and self-accusation, in addition to psychomotor retardation and difficulty of thought.

The *onset* of this form is usually subacute or acute, following a period of indisposition, and occasionally even a short period of exhilaration and buoyancy of spirits; a few cases appear after an acute illness or mental shock.

The patients are profoundly despondent, indulging in all sorts of *self-accusations*. They feel that they have been great sinners, have neglected their duties, and made many enemies; have never done anything right, and their whole life has been one long series of mistakes. They accuse themselves of bringing misfortune on others, or of causing some great calamity. They claim that they have no feeling, no sympathy for others, and no more tears. They feel that they are being watched, fear arrest and imprisonment, and may even claim that the scaffold for their execution is already erected. People hold them in derision, laugh and jeer at them. Others are incriminated by their misdeeds, and are suffering imprisonment. They have lost everything, and will be driven into the street with their families, to wander about in utter misery. They have sold themselves to the devil, and will be taken to hell.

Hypochondriacal delusions are prominent; their health is ruined, they are in the clutches of some malignant disease, different organs are wasting away; cloudy urine signifies profound disease of the kidneys, and the presence of a cough is sufficient evidence of the last stage of consumption. Female patients may complain of being pregnant, or of uterine tumors. Many, both men and women, complain of sexual abuse. Their various delusions may become

absurd and fantastic. One very common delusion is that everything about them is altered: their home is not their own, the room is changed, their relatives are gone, and never will return; they are not in the right place, have been removed to another world; they themselves are changed, are but a shadow, a skeleton, without life, which can neither live nor die. The heart has ceased to beat, the stomach and intestines are entirely gone, and even if their heads were cut off they would still continue to live.

Hallucinations are occasionally associated with this condition; groans and moans are heard, disagreeable odors permeate the room, terrible apparitions appear at night, and fearful scenes are depicted.

The *consciousness* is for the most part unclouded; the patients are oriented, and comprehend correctly what transpires in their environment. They understand questions, and answer coherently; but the content of thought and speech shows a constant tendency to revert to their depressive delusions. They are self-centred, and think only of their own misfortune. Thought is difficult, as is seen when they attempt to write letters or to think over a problem. They tire easily during visits.

Insight into the condition is very often present, yet while admitting recovery from previous similar attacks, they declare that their present condition is so much worse that they can never recover. The emotional attitude is uniformly depressed. The patients are dejected, gloomy, and perplexed. Sometimes they lament for hours in monotonous tones. Although conscious of the surroundings, they appear utterly indifferent to them.

In *conduct* the psychomotor retardation is evident in their slow and hesitating replies to questions, and their sluggish and languid movements. Further, there is almost

no independent action. There is often considerable anxious restlessness, when the patients pace up and down the room, sway the body, or rock uneasily in a chair, picking at the clothing or rubbing the head. Occasionally the patients attempt suicide.

There are a few cases which present coherent delusions of persecution accompanied by many hallucinations with clear consciousness, which remind one very much of alcoholic delusional insanity, save for the psychomotor retardation. The hallucinations play a rather important part, and persist for a long time.

Physical Symptoms. — The patients complain of numbness in the head, of a feeling as if there were weights upon the chest, and of palpitation of the heart. The appetite is poor, the tongue coated, and the bowels constipated. There is usually a strong aversion to food. The sleep is broken and disturbed by anxious dreams. The eyes are lustreless, the skin is sallow and without its accustomed firmness.

The *course* of this form shows variations with partial remissions and very gradual improvement. The duration extends from six to eighteen months.

Stuporous Conditions

The third group of depressive cases is characterized by numerous incoherent and dreamlike delusions and hallucinations, with a pronounced clouding of consciousness. This form rarely appears alone, but usually forms an episode in the course of the other forms. In the latter case it develops gradually. Otherwise the onset is sudden.

The patients are so absorbed in their delirium that there is scarcely any response to external stimuli. For them everything seems changed in the most fantastic manner;

the whole world is being consumed by fire or congealed into ice. They themselves are removed from everybody, have been taken up into a cloud and carried off to the farthest point of the universe, and left there alone. They are to be shoved off into space where they will keep falling forever, or they are crowded into a narrow grave from which they can never escape. The walls of the room are closing in upon them, and passing troops have arrived to attend their execution. Crowds jeer at them; they are made to wear a crown of thorns or are turned loose to run naked in the street. Everything about them has a most mysterious aspect; they are in the midst of historical personages, and are made to do penance for the whole world. They have been transformed in a most horrible manner: have two heads, the body of a serpent, and the feet of an elephant. While in this dreamy state they are considerably retarded, lying in bed thoroughly indifferent; only the anxious expression, the resistance to passive movements and peculiar postures, betraying their anxiety and fear. Occasionally a few words or sentences are uttered slowly and in low tones. They do not eat, and are entirely unable to care for themselves.

The improvement is gradual, with persistence of hallucinations and some delusions even after the consciousness has become clear. Besides the *physical symptoms* noted in the other forms, there is a profound disturbance of nutrition, with considerable loss of weight, great insomnia, foul odor of the breath, extreme constipation, or occasionally diarrhoea. The height of the disturbance is reached in a few weeks and runs a short *course* of from four to eight months.

MIXED STATES

The third phase of manic-depressive cases presents a combination of the fundamental symptoms appearing in the other two. An indication of the close relationship between the maniacal and the depressive phases of the disease has already been demonstrated in the transitory periods of depression in the maniacal, and of exhilaration in the depressive states. A depressed patient may retire at night dejected and retarded, and awake happy, exhilarated, and active. For a few hours, or even a whole day, he may exhibit typical maniacal symptoms, when suddenly the cloud again settles down upon him and he becomes depressed and retarded as before. Occasionally a hypomaniacal patient attempts suicide as a result of depression.

Simultaneous appearance of maniacal and depressive symptoms characterizes the mixed states. In conditions of deep depression there may persist a strain of happiness in the emotional attitude and a facilitated release of voluntary impulses. A depressed patient may smile at absurd remarks in his presence or say something witty; or the active, boastful, maniacal patient may be ill-humored and discontented, expressing anxiety and fear. In mixed states there are two groups of cases corresponding to the predominance of the symptoms of one of the states over those of the other, called respectively *maniacal stupor* and *stuporous mania*.

Maniacal stupor is characterized by a maniacal state with undoubted evidences of retardation. These patients, in spite of pressure of activity, display a poverty of thought and a slowness of apprehension and comprehension. The attention is poor, questions are not understood unless repeated with emphasis, and even then absurd replies may be made. They are not especially talkative, yet they do

not remain silent for very long at a time. Their speech is incoherent and often very monotonous. Conversation may even drag until the patient gets warmed up. Their manner and conduct may lead to the suspicion that the patients are deteriorated until at some time or other they suddenly appear alert, giving pertinent and even quick-witted replies.

In *emotional attitude* they are cheerful and serene, laughing both with and without sufficient provocation. The pressure of activity is not striking, being limited, perhaps, to self-adornment, grimacing, and mischievous annoyance of others. A superficial examination often fails to reveal any undue activity; but closer observation discloses their incapacity for any systematic occupation in spite of orderly behavior. They show an inclination toward pranks and tricks. They hoard up scraps, plunder rooms, and pick their clothing to pieces. There is an evident lack of premeditation in all of their actions. Occasionally they may break things impulsively, pound furniture, overthrow fellow-patients, or smash windows.

In **stuporous mania** there is a predominance of stupor over the maniacal symptoms. These patients are inactive, sluggish, lying abed most of the time or sitting unoccupied, seldom speaking voluntarily, and only occasionally answering questions, and then always in low tones. Some entertain a few changing depressive delusions. Consciousness is clear, and they seem to be oriented. In the midst of this stuporous condition they suddenly develop great activity, rush about, disrobe, tear their clothing and destroy furniture, sing and talk loudly and freely, often make bright and striking remarks, and then after a few hours as quickly return to the previous stuporous state. One patient would sit on a settee with downcast coun-

tenance, apparently oblivious of the surroundings, never responding to questions or to the calls of nature: suddenly she would leap up from her seat and waltz down the hall in step to a tune which she would hum, but in the course of a few moments would again return to the seat and assume her previous attitude.

It is not usual for such a state to form the picture of the entire psychosis; it occasionally appears as an episode in the course of a maniacal attack, but more often forms a part of the transition state between a maniacal and a depressive condition. Other less definitely mixed states are encountered in the transitional period between individual attacks.

Course.—The course of manic-depressive insanity is marked by recurrence of attacks separated by lucid intervals. With but very few exceptions, following the first, others recur throughout the life of the individual, appearing with greater frequency between the ages of eighteen to thirty and forty to fifty. In a small percentage of cases, four to five per cent., the attacks from the first pass directly from one into another, sometimes with such regularity that the name “alternating insanity” has been applied to them, or where short intervals have intervened, “circular insanity.” If but one or two attacks occur during the life of an individual, the separate attacks are in no way essentially different from those recurring frequently. Usually the first forms the type for the majority of the succeeding attacks, that is, the first being maniacal, the majority will be maniacal; it seldom happens that all are of the same type: at some time or other a depressive attack is sure to appear. On the other hand, one patient during life may suffer from all possible forms, from hypomania to profound stupor.

Where the first attack occurs before thirty years of age,

and especially in women, it is most often depressive. This first depressive attack is often followed by one of a maniacal character. Two consecutive depressive attacks at the beginning are rare. A first maniacal attack is almost always followed by a lucid interval, seldom by a depressive attack. The mixed forms usually do not appear until after two or three attacks of either the maniacal or depressive form. The single attacks vary in length from a few weeks to two to five years, the usual duration being from six to twelve months. As the attacks recur, their duration increases.

The *lucid intervals* vary considerably in length, from a few days or weeks to many years, and stand in no definite relation to the duration of the attacks. They are apt, however, to be longer at the beginning and shorter as the attacks recur, until finally they may disappear altogether, the attacks passing directly from one into another. During the intervals the patients are perfectly lucid except in a few cases where the attacks are long, frequent, and severe. The patients are able to reënter the family, to employ themselves profitably, or to conduct business. Even the few who do not thoroughly recover are able to leave the hospital, but are apt to show some restraint, lack of independence, a tendency to be morose, an unusual susceptibility to fatigue, an instability with a diminished capacity for work, or they may be irritable and self-conscious. During the interval some of the patients fail to show genuine insight. They realize that they have been "excited and nervous," but attribute it to family trouble and confinement in a hospital. The lucidity of a long interval may be interrupted by short periods of moderate exhilaration, flightiness, and unusual activity, or on the other hand the patients may be unnaturally apprehensive,

suspicious, and despondent. Where the attacks pass from one into another, the transition is gradual, reaching over a period of several days, during which time it is possible to detect states similar to those encountered in the mixed forms.

The *transition* from a maniacal to a depressive phase, or *vice versa*, is usually gradual, though it may occur during a night. In this transition the stages of alteration are usually quite perceptible. At first the countenance of the depressed patient becomes more open and the eyes appear brighter and the skin firmer and more elastic. The patient is more affable, shows more interest in the surroundings, and expresses a desire for freedom. The activity, at first increasing slowly, now becomes prominent: he is busy all the time, is happy, never felt better in his life, and everything pleases. From this time the maniacal state becomes quite evident. The maniacal patient at first gradually loses weight, the pressure of activity abates, he is calmer and more in earnest, his many schemes recede to the background and then entirely disappear. Soon his movements become languid, he himself is seclusive, talks less, only occasionally mentioning his ill feelings and misfortunes. His countenance loses its freshness, and at last we have a typical depressive state.

Prognosis.—The prognosis of the disease is unfavorable in view of the certainty of the recurrence of attacks throughout the life of the individual. It is favorable for recovery from the individual attacks, except in a small percentage, four to five per cent. of cases, which from the onset pass directly from one attack into another. While, with this exception, it is sure that there will be other attacks and recoveries, the frequency of their recurrence and the duration of the lucid intervals is entirely uncer-

tain. At present we have no means of judging just what the future course will be. In general it may be said, however, that it is safe to predict frequent recurrence of attacks with short intervals where the psychosis manifests itself early and without external cause.

If the onset is previous to the period of involution, one should expect a recurrence during the climaterium. There is a tendency to mental deterioration only in a few cases where the attacks are long, frequent, and severe; but even these patients, in the intervals, are conscious, well oriented, and retain a very good memory. They are indifferent and irritable, and very susceptible to alcohol, and may be deficient in judgment. These defects increase with the recurrence of attacks; but even after many years the deterioration is very moderate and can be distinguished from that of other psychoses by the persistence of some of the fundamental symptoms characteristic of the disease, such as distractibility, pressure of activity, retardation, etc. Finally, there are a few cases, especially those with a greater predominance of attacks of one type, which, after many years, continue permanently maniacal or depressed.

Diagnosis. — There is usually little difficulty in recognizing the psychosis, where there has been a previous attack; yet the occurrence of more than one attack is by no means pathognomonic of manic-depressive insanity, as it may occur in dementia præcox, especially in the catatonic form, in melancholia, and in senile delirium. A knowledge of the fundamental symptoms of the disease makes it possible to diagnosticate it immediately in the first attack. The diagnosis depends in the maniacal state upon the great distractibility, little clouding of consciousness, flight of ideas with tendency to sound associations, pressure of activity, happy but unstable emotional attitude, paucity of delusions

and hallucinations, and absence of evidences of deterioration; in the depressive states it depends upon psychomotor retardation, absence of spontaneous activity, dearth of ideas, dejected emotional attitude, moderate clouding of consciousness, and absence of evidences of mental deterioration.

The differentiation of the disease from the *exhaustion psychoses* and from the excited stages of the catatonic and hebephrenic forms of *dementia præcox* will be found fully detailed in the differential diagnosis of those diseases.

The maniacal form is differentiated from *hysterical excitement* by the presence of the flight of ideas, pressure of activity, and intractable behavior. Hysterical excitement subsides quickly and completely after but very short duration. The delirious form may be confounded with the dreamy state of the epileptic. In the epileptic the content of thought is uniformly dreamlike and controlled by hallucinations and delusions, and in emotional attitude patients are irritable, uneasy, and ecstatic; while the maniac shows fear and rapid changes of emotion with a predominance of exhilaration.

It is more difficult to distinguish simple retardation from the initial period of depression in *dementia præcox*. In the manic-depressive patient the psychomotor retardation, with slowness of movement, low tone of voice, difficulty of thought with sparsity of ideas, slowness of application of attention, and slight clouding of consciousness, stand out in contrast to the absence of retardation, freedom of movements, and thought without consistent interference with the flow of ideas and to the clearness of consciousness in *dementia præcox*. Rapid appearance of senseless delusions and numerous hallucinations without clouding of consciousness speak for *dementia præcox*.

The differentiation of the depressive states from *dementia paralytica* and *melancholia* have been discussed under these psychoses.

Acquired neurasthenia is sufficiently differentiated from the depressed forms under that disease.

The mixed states most frequently lead to error in their recognition. They have sometimes even been mistaken for the excitement of *imbecility*. They are to be differentiated from the *catatonic condition* by the absence of negativism. If in the mixed states the patients struggle, the cause for it lies in the irritable, fretful disposition, which almost always leads to abuse and violence. In stuporous mania the patients pay more attention to their environment, and are biassed in their actions by circumstances, in contradistinction to the sluggish or wilful indifference of the catatonic. They furthermore display a poverty of thought and not a stereotyped and senseless speech production. The movements in catatonic patients are apt to be planless, instinctive, and with a uniform pressure of movement, while in stuporous mania they are playful and adapted to the environment.

Treatment. — Individuals who have suffered from an attack of this disease should be compelled to lead a quiet life, free from irritating influences. They are very susceptible to alcohol, and should avoid its use most scrupulously. They should be advised against marriage, and, if married, against further child-begetting. In patients who suffer from regular and frequent recurring attacks, graduated doses of trional or sulphonal may reduce the intensity of the excitement, or ward off altogether an approaching attack. Berkley recommends for the same purpose atropia given in full doses.

In the separate attacks of the *maniacal forms* it is essen-

tial to remove at once all forms of external irritation, and, except in very mild cases, removal to a hospital is necessary, and even the milder forms run a more moderate course under the influence of quiet and well-regulated hospital surroundings than outside. Unrestrained activity tends to increase the excitement, and there is, therefore, an indication to limit as much as possible the pressure of activity. One of the best means of accomplishing this is confinement in bed, especially those cases which are anemic and debilitated. In severe excitement, prolonged warm baths give excellent results. It, however, may be necessary, in accustoming the patient to the baths, to temporarily give a preliminary dose of sulphonal fifteen grains, or hyoscin hydrobromate $\frac{1}{120}$ to $\frac{1}{60}$ grains. This accomplished, the warm bath properly applied will often relieve the greatest excitement, and frequently renders medicinal treatment unnecessary. When unavailable, the use of hyoscin hydrobromate hypodermically or by mouth is an excellent measure for subduing intense activity. After the excitement subsides, the prolonged bath, combined with occasional freedom from all restraint, is of value. In very extreme excitement with impending collapse, the administration of alcohol, in the form of whiskey or brandy, or camphor is necessary, and in the case of coexisting cardiac weakness, digitalis or caffein should be added. Prolonged and extreme insomnia may necessitate the use of hypnotics, of which sulphonal and trional are most serviceable. Another important indication is the management of the patients, in which it is absolutely essential that the greatest amount of tact and patience be used; gentle friendliness at suitable moments very often renders what appears to be a most dangerous patient quite tractable. This requires that the nurse exercise complete self-

control, be free from all prejudices, avoid all use of discipline, and above all be frank and truthful. The nutrition of the patient demands special attention. An abundance of nutritious and easily digested food should be offered the patients at frequent intervals. It often requires considerable patience to accomplish this. In severe cases the patients should be weighed daily in order to ascertain if the body weight is falling off, and where necessary artificial feeding by stomach or nasal tube can be employed. It is very often a difficult matter to determine when the patients are well enough to be discharged from treatment, because of their great importunity and impatience to be set free while some symptoms still remain. One of the greatest dangers arising from an early discharge is the tendency to alcoholic indulgence. A safe guide for deciding this question may be found in the weight, which should return to normal.

In the *depressed states*, accompanied by agitation, opium or morphin is often indicated to induce quiet (see p. 265). Evening baths with cold effusions and careful massage may be used with great benefit. A carefully prescribed routine, with good nutritious diet, ample rest in bed, and outdoor exercise, is always indicated. Special attention should be paid to digestion. All sources of emotional disturbance should be avoided, such as the visits of relatives, long conversations, letters, etc. Attempts to comfort the patient in the height of the disease seem to be useless. In the lighter cases hypnotic suggestion has been used to great advantage in relieving the insomnia, despondency, and disagreeable somatic sensations. The greatest care must be exercised to prevent suicidal attempts, which are often to be most guarded against at times when the patients, though still convalescing, believe themselves

recovered, and also in the transition period between two phases.

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PARANOIA

PARANOIA is a chronic progressive psychosis, occurring mostly in early adult life characterized by the gradual development of a stable progressive system of delusions, without marked mental deterioration, clouding of consciousness, or involvement of the coherence of thought.

Since the adoption of this name by Mendel in 1881 its application has shown wide variation. Many psychiatrists consider only the character of the development of the psychosis and its early symptoms, and pay little or no attention to the course of the disease as a whole or its outcome. Others have applied the term to any psychosis in which the predominant symptoms were primary delusions and hallucinations. These views together with the consideration of the disease process, either as a purely affective mental disturbance, or as involving the intellectual sphere alone, account for the use of such terms as periodical paranoia and acute paranoia with recovery. A mental disease should not be characterized alone by the presence of hallucinations or delusions, primary disturbance of the intellect, or of the emotions without regard to the course and the outcome. The many unsuccessful attempts to classify the forms of paranoia according to the psychological symptomatology has usually led to the conclusion that the various transition forms into other psychoses predominate in the clinical picture. This naturally interferes greatly with the integrity of any disease picture. It is the careful study of the clinical symptomatology in conjunction with

the etiological factors, the course and the outcome, which has led to the recognition of the disease picture described here.

Etiology. — The disease is not common, constituting only two to four per cent. of the cases admitted to insane hospitals. Men are more often afflicted than women. The disease begins between the ages of twenty-five to forty. It develops on a defective constitutional basis, either congenital or acquired, defective heredity existing in a very large percentage of the cases. Peculiar traits and eccentricities may be recognized early in life, the patients being moody, dreamy, or seclusive. Some show perverted sexual instincts, or a marked aptitude for study or mental activity in special limited fields. Some have been abnormally bright; others have always been flighty, entering into many projects which they were unable to pursue successfully; many show stigmata of degeneration. Exciting causes occasionally form the starting-point of the psychosis, such as an acute illness, excessive mental stress, shock, business reverses, deprivation, and disappointment.

Pathological Anatomy. — There is as yet no demonstrable pathological anatomical basis peculiar to paranoia.¹

Symptomatology. — The development of the psychosis is very gradual, extending sometimes over years, and is usually so insidious that the disease is in existence long before it is recognized. During this period it may have been noticed that the patient had changed in disposition, having become somewhat irritable, grumbling, suspicious, and easily discontented, and that he had made indefinite physical complaints, especially of malaise and insomnia.

¹ Berkley, however, mentions that the most striking pathological sign encountered by him is the abnormal topography of the cerebral cortex, the intersection of sulci and malposition of convolutions.

The first symptom to be noticed is that the daily mental or manual labor becomes distasteful, and little affairs at home or in the shop cause displeasure and arouse suspicion. The wife seems less attentive, the children less loving, shopmates less friendly, and the overseer more stern. The accidental absence of the morning greeting, or imaginary slight on the part of a close friend, sets the patient to thinking that it cannot all be accidental. He becomes distrustful, is constantly seeking other evidences of unfriendliness, and careful watching soon satisfies him that he is neglected, both at home and at work. He begins to make complaints, accuses his friends of slights, and members of his fraternity of plots. He leaves his employment, holds aloof from his companions and friends, and often becomes rude and discourteous. Some patients are able to ignore for a time the apparent indifference of friends, but others become much disturbed and suspect a malicious purpose. They are morbidly sensitive, considering that such trifles as harmless jokes, smiles, or accidental nods of the head have special reference to themselves. Items in the paper indicate some intrigue, bill posters contain hints, some daily passer always lights his cigar or coughs when near them; men similarly dressed always meet them near the same corner, or are shadowing their footsteps. Any doubts as to an evident purpose in all this are sooner or later dispelled by remarks accidentally overheard. In this way false interpretations gradually assume greater prominence, and the resultant *persecutory delusions* are constantly increased and aggravated. Those who conscientiously approach and question friends or supposed intriguers are further alarmed and justified by the indifference displayed and the little satisfaction obtained; some ignore them, others answer evasively. Trivial matters which formerly passed unheeded

are now falsely and absurdly interpreted and enter into the structure of their delusions. A spot on the coat, a calloused finger, a decayed tooth, or headache are all regarded as positive proof of treachery and an effort to get them out of the way by a slow process of poisoning. The appearance of natural baldness is readily explained by the application of electricity during sleep.

Sooner or later, in connection with these delusions of persecution, which are firmly held and well moulded by a coherent train of reasoning, there may also appear *expansive delusions*. These may be coincident with the persecutory ideas at the onset of the disease, but more frequently are the outcome of the delusions of persecution. The increasing attention which the patients attract, and the persistent persecution lead them to cast about for the reason. While some find this in property which they really possess, others believe that it lies in their personal charms, while still others conclude that they have been born for a special mission, or are of noble descent. A thrifty Irish woman, who had accumulated considerable property by dint of hardest labor, finds a sufficient cause for her persecution in attempts of her enemies to secure her hard-earned accumulations. A factory employée already approaching the limits of the climatic, finds the reasons for her persecution in her attractive appearance, and the desire of eminent men to seduce her. Where the expansive delusions are more directly evolved from the delusions of persecution, the patient asks himself why he is so molested and tormented, why so many, not only individuals, but nations, seem directly interested in him, and why he is constantly accompanied by a secret patrol. Gradually it dawns upon him that he is a kidnapped son of a millionaire, or of a crowned head; that he is of Napoleonic descent and lawful heir to the throne,

while his extensive landed properties are unlawfully used by the government. This explanation first appears in the tendency to find evidences of persecution in many or all the events of their environment, and becomes prominent when the patients discover its purpose. Then all these supposed facts assume a place in the chain of evidence which confirms their conclusions.

These delusions may only assume the form of an exaggerated *feeling of self-importance*. The patient considers himself especially renowned in his profession,—a fine lawyer, an excellent teacher, an interesting talker, an ideal gentleman, a social favorite, or an individual worthy of great political distinction. Finally a change of personality may result, and the patient announces himself as titled, or a direct descendant of Christ. The patients become aware of this in various ways, one once receiving a salutation from the President, another recognizing a striking similarity between himself and the equestrian statue of a famous general. Others are assured of their high station by the deference paid them by every one: people bow to them, their names are in the paper, the orchestra begins to play as they enter the theatre, the prima donna directs her song at them, and the birds chirp when they are near. The appearance of the sun from under a cloud, casting its rays upon them, indicates that they are under the special guidance of God.

All delusions, both persecutory and expansive, are held with great persistency, and built out into a coherent system, which is an essential characteristic of the disease.

In the systematization of the delusions another prominent feature is the frequent appearance of *retrospective falsification of memory*. While this symptom is mostly characteristic of paranoia, it may also be present in the

paranoid forms of dementia præcox, and in melancholia. Here the patients, in reviewing their past life, find evidences of persecution, or detect occurrences which at the time should have indicated their superiority. The loss of a situation many years ago, derisive remarks by fellow-workmen, or an injury, now become clear evidences of their persecution by enemies. One patient recalled that when thirteen years of age a priest took from her a book, claiming that it was unfit for her to read. This incident she now regards as the beginning of years of persecution by the priesthood, who would seduce her and then hold her up as an example before the world. Another patient led his class in marching, and later was chosen captain of the boys' brigade: these incidents at that time should have made him aware of the fact that he was to have been a famous general. Another remembered overhearing his parents whisper in an adjacent room, becoming mute at his entrance, and later a disguised woman, who was really his mother, visiting at the house, all of which pointed to a noble birth and his displacement by a younger brother. Many similar incidents scattered throughout life are pointed out as striking evidences which aid in fortifying their system of delusions.

An erotic element often appears in the delusions, which in some cases has been pronounced enough to lead to the recognition of an *erotic paranoia*. Likewise, the religious coloring is sometimes strong enough to establish a *religious paranoia*.

In the erotic cases the patient usually believes himself the object of admiration by some lady who is attracted to him, and solicits his attention. She makes him aware of this by daily appearing at her window as he passes, or by casting sly glances as she drives by. Other evidence is gath-

ered by anonymous love poems in daily papers. Numerous fantastic methods of communicating his love to her are devised, to which she responds by wearing certain articles of clothing, or arranging her hair differently. Their mutual admiration is publicly regarded as an open secret. He hears it indirectly referred to everywhere, and friends would have him infer, from casual remarks, that they are well pleased. Sometimes this fanciful, romantic, and even platonic love is maintained for years without action; at others, the patient makes an effort to approach his supposed fiancée. Her rebuffs may at first be regarded as necessary for the accomplishment of her desires. Later she may appear to him in the guise of one of his companions.

Hallucinations are always present at some time, but do not play a very important part in the psychosis, and rarely persist through the whole course of the disease. Hallucinations of hearing are apt to be the most prominent. At first very indefinite noises annoy them. Later they hear their names mentioned, or derisive laughter from a crowd; nicknames are called out, some one curses below the window, and bits of conversation from adjoining rooms excite them. The remarks are more often of a depreciatory nature. Hallucinations of sight are rare, but those of general sensibility are quite frequent,—the hair is plucked at night, the skin irritated by poisonous powder, the flesh pierced by bullets, or the countenance transformed by the nightly application of an iron mask.

There is never genuine *insight* into the disease. The patient, on the other hand, may complain of all sorts of physical ailments, such as nervousness, indigestion, pains in the head and back, for which he seeks medical attendance; but he cannot be made to realize the fallacy of his

delusional ideas. The *memory* is well retained, and *judgment*, except as biassed by the delusions, is unimpaired.

The *emotional attitude* of the patients stands in direct relation to the character of the delusions. They are irritated by their persecutors, are shy and excitable, and at first usually despondent; some, however, tolerate the persecution and regard it as essential to their spiritual welfare. All sooner or later become arrogant, proud, and dogmatic.

In *conduct* the patients appear quite normal for a considerable time. Some of them, long before the real nature of their disease becomes evident, attract attention by their eccentricities, peculiarities in dress, oddities in manner, excessive religious zeal, or an attitude of self-importance. Later they become seclusive, move about in their employment from city to city, leave one shop to enter another, where they soon detect the presence of their former persecutors, and are again compelled to leave. In this way an iron moulder travelled from San Francisco to Boston in order to avoid the persecutions of his trade-union. A change affords only temporary relief to the anxiety, as suspicious circumstances are soon noticed which leave no doubt that news about them have been passed on from their last situation until finally their existence becomes known the world over. They become unstable in their behavior and mode of living, are unable to conduct a successful business, and fail to support their families. In reaction to the delusions they attempt to call public attention to their persecution by writing newspaper articles and issuing pamphlets. Very often they apply to the police for protection. Frequently they assume the offensive, and take the matter of vengeance into their own hands. Not infrequently the first striking evidence of the disease is a

murderous assault upon some one. The paranoiac is for this reason the most dangerous of all insane. One patient assaulted the mayor of the city for keeping him from his fiancée; another shot at a passing milkman, whom he believed had been poisoning his cattle and bewitching his sister; another drew a pistol upon a man with whom he was having an altercation over business matters, in the belief that he was the secret agent of the French government sent to kill him.

In accordance with expansive ideas, the patient may address the President as his father, or demand access to a millionairess whose parents are keeping them apart. If confined in an institution, they may for a time ingeniously conceal their delusions until they find evidences of continued persecution in their new surroundings, when the fellow-patients appear to them only as accomplices placed there to aid in their discomfort. Sometimes their confinement is regarded as an effort of their persecutors to make them insane. Some patients submit gracefully to their detention, considering it but another cross to bear before their final rescue and the proclamation that they are rightful rulers. A few patients even consider that they are being treated with the utmost consideration and the greatest attention, provided with the best quarters, and granted every possible privilege by those who recognize the great injustice done them.

The **course** of the disease is protracted. The onset is always gradual, and usually the disease has been in progress for some time, even a few years, before recognition. When once established, the course is slowly progressive with a gradual evolution of delusions which are constantly being further systematized and made to encompass new environment. Several psychiatrists claim that the course

of the disease presents definite periods according to the stages of evolution of the delusions. At first there is the prolonged period of insidious onset, by Regis called the period of subjective analysis, followed by the persecutory period with the development of delusions of persecution with hallucinations, and finally the ambitious period accompanied by a change of personality. The patients usually are quite orderly, present an unclouded consciousness, and for many years are capable of considerable labor, both mental and manual. After a duration of many years there appears a moderate degree of mental weakness. Patients become unable to apply themselves, take less notice of their environment, and less care of themselves. In some cases the disease may seem to be at a standstill for years, while in others partial remissions occur when the patients for a time are able to rejoin their families, but are rarely in a condition to resume their accustomed occupations.

The diagnosis depends upon the slow onset, the characteristic, coherent, and systematized delusions of persecution with retrospective falsifications of memory, often associated with a change of personality, unclouded consciousness, coherent thought, and absence of mental deterioration for many years.

The *paranoid forms of dementia præcox* have already been differentiated from paranoia under the former disease.

A few cases of *dementia paralytica* and *melancholia* may simulate paranoia. *Dementia paralytica* is to be distinguished by its rapid development, the early appearance of emotional weakness, and physical signs. The conduct of a paranoiac is entirely dependent upon the content of the delusions; he cannot be reasoned with, is persistent in the

prosecution of his ideas, and is rarely submissive to confinement; while the paretic opposes his retention weakly or intermittently and with some stubbornness.

The melancholiac presents a more rapid onset (three to nine months), a marked disturbance of the emotional attitude, fear, self-accusations, occasional clouding of consciousness, an absence of system in the formation of delusions, and evidences of mental deterioration within the course of two years.

The **prognosis** of the disease is very poor, as no case of genuine paranoia ever recovers.

The **treatment** of the disease is naturally limited to the removal of irritating influences and to confinement in an institution where systematic routine with out-of-door life and ample exercise may ameliorate or ward off the condition of mental weakness.

There are a few cases of paranoia which have been designated by Hitzig as **querulent insanity** (*Querulantenwahn*)¹ which deserve a brief description here. The psychosis is of gradual onset, and usually arises as the result of some legal injustice, — a defeat in court, an unjust award of damages, loss of property, or an unfair adjustment of claims, in which the patient has been the sufferer. He refuses to settle, carries the case from one court to another, and finally develops an insatiable desire to fight to the bitter end. He reaches a point where he is unable to view the standpoint of any one else with any sense of justice, and his personal belief and desire completely obscure his better judgment. The statutes appear inadequate, and even the fundamental principles of the law fail of comprehension. He sets aside all business in

¹ Hitzig, Ueber den Querulantenwahn, 1895, Köppen, Archiv f. Psy., XXVIII, 221.

order to carry on the struggle, solicits sympathizers, and denounces those who do not side with him. Hearsay and bits of knowledge gathered at random are cited as evidence in his behalf, and money is squandered in the pursuit of justice to the most extreme limits. He cannot abide by the ultimate decision after all the usual means of justice have been exhausted. Failing to appreciate the needlessness of further struggle, he writes to magistrates, legislators, consuls, ambassadors, and finally to the President or foreign rulers. Answers to these letters only create greater embitterment. His letters are long and carefully written, usually upon a particular kind of paper, and sometimes written with colored ink.

The patient is irritable and often becomes greatly excited in conversation, although at the same time priding himself upon his ability to exercise self-control.

Consciousness remains unclouded. Memory is well preserved, in fact it is often surprising to see with what accuracy he is able to quote from law books, to repeat parts of speeches, and to enumerate various dates. Thought continues coherent, but there is a great tendency to monotonous repetitions of the delusions. One seldom misses them in even a short conversation.

There is no insight into the condition. On the other hand, the patient is often encouraged in his belief by the fact that there are always many men, and not a few physicians, who will testify to his sanity.

The few cases of querulency are apt, after a prolonged course, to present greater deterioration than other varieties of paranoia; the content of speech becomes more and more limited and somewhat incoherent, the irritability increases, the patient becomes peevish, indifferent, and sometimes even stupid.

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GENERAL NEUROSES

THE general neuroses comprise those diseased conditions which are accompanied by functional nervous disturbances. They are characterized in common by a morbid constitutional basis, and by the presence of peculiar transitory disturbances, involving sometimes the physical and sometimes the psychical field. These latter disturbances, however, must be regarded as exacerbations of a permanent diseased state. They simulate in this respect the attacks of manic-depressive insanity, but in the intervals a general change of the whole personality is more prominent in the general neuroses than in manic-depressive insanity. The group includes epileptic and hysterical insanities, and traumatic neuroses.

EPILEPTIC INSANITY

Epileptic insanity is a complex accompanying epilepsy, characterized by a varying degree of mental deterioration, evidenced by impairment of intellect, and to a less extent of memory; emotional irritability, impulsiveness, moral anergy, and incapacity; for valuable production. It also includes certain periodical disturbances, transitory ill-humor (*Verstimmung*), and dreamy states (*Daemmerzustaende*), which accompany epilepsy.

Epileptic deterioration may appear at any period after the onset of epilepsy, and thus far no direct relation between the number and severity of the convulsions and the degree of deterioration has been established. A patient with numerous (one or more daily) and very severe seiz-

ures may present only moderate deterioration, with infrequent and brief periods of excitement; while another, who averages perhaps only five or six seizures yearly, may suffer from prolonged and repeated attacks of stupor, and show considerable deterioration. A few cases may present many or all the characteristic clinical symptoms of epileptic insanity without having any convulsions.

Etiology. — *Defective heredity* is the most frequent cause of epilepsy, appearing in eighty-seven per cent. of cases where a complete family history was obtained, while in over twenty-five per cent. epilepsy had existed in the parents. Féré notes among progenitors and relatives of epileptics the extreme frequency of headaches, migraine, infantile convulsions, mental disturbances, and deterioration. Wildermuth considers that *alcoholism* exerts almost as powerful influence as mental disorders in the causation of epilepsy in children. Neumann states that in twenty-three and seven-tenths per cent. of cases one or both parents had been addicted to the use of alcohol. This abuse of alcohol is by far the most important external cause of epilepsy, as evidenced not only by the frequency with which it appears in chronic alcoholism, but by the great intolerance to its use displayed by epileptics, and the consequent increased intensity of the mental symptoms. Even when taken in small quantities, alcohol often leads to a characteristic intoxication, with profound disturbance of consciousness, faulty memory, and especially angry excitement.

We may mention as evidences of congenital defect various physical stigmata, as malformation or asymmetry of skull, microcephaly, hydrocephalus, or "the epileptic physiognomy," which is characterized by a broad forehead, broad and flattened nose, prognathism, thick lips, and

staring eyes with wide pupils. In thirty-four per cent. of cases, convulsions appear in infancy, while their development in childhood and later results from a series of insults in the form of acute diseases, mental shocks, fright, lesions of nerves, carious teeth, foreign bodies in the ear, or even sexual intercourse. The great variety of these causes indicates that they are not actual causes, but rather excitants of the convulsions.

Head injuries are frequently assigned as the cause of epilepsy, and in a certain number of cases a direct relation between them can be traced. Wildermuth gives the frequency as three and eight-tenths per cent., and Heeres as four and two-tenths per cent. The numerous scars often found on the head are more frequently the results than the causes of the malady.

Epilepsy often appears for the first time during the period of development, the impulse often being given by puberty or menstruation. On the other hand, it may appear later, particularly after infectious diseases, during the period of involution, or in senility, possibly in connection with vascular changes (*epilepsia tarda* or *senilis*). In fourteen hundred and fifty cases Gowers found the following results: the onset of epilepsy occurred in twenty-eight and nine-tenths per cent. under ten years; in forty-five and nine-tenths per cent. from ten to twenty years; in fifteen per cent. from twenty to thirty years; in nine per cent. from thirty to sixty years; and in only thirty-four hundredths per cent. after the age of sixty.

Pathology. — As all epileptics are not insane, it is evident that the pathology of epileptic insanity must be based upon that of the seizures plus heredity, constitutional defect, and other factors whose nature and influence are as yet not thoroughly known. There is a wide variation in

views as to the nature of epilepsy. Wildermuth asserts that thirteen and three-tenths per cent. of his cases were due to polioencephalitis, and five and eight-tenths per cent. to other gross lesions, as porencephaly, encephalic scars, neoplasms, malformations, multiple tubercles, etc. In the remaining eighty and nine-tenths per cent. of cases — called “genuine” or idiopathic epilepsy — various anatomical changes are found in the brain, which probably bear some relation to the clinical symptoms. The most important of these changes are an increase of the neuroglia tissue, especially in the superficial layers of the cortex, and sometimes in isolated foci (Chaslin, Bleuler), and sclerosis of the cornu ammonis (Bratz, Nissl, Worcester). In senile epilepsy the senile vascular changes, as well as cellular degeneration, are usually pronounced. While the exact significance of these changes is unknown, the assumption may fairly be made that epileptic deterioration depends upon a general and profound disease of the cortex.

The *periodicity* of the seizures may possibly be explained by the apparent tendency in the nervous system to a periodical reaction to any continued irritation. If the researches of Krainsky, Cabbitto, and Agostini can be substantiated, it would seem probable that genuine epilepsy is due to a toxic condition arising from faulty metabolism, and that the immediate cause of the convulsions is the accumulation of deleterious substances in the blood. This theory receives further weight from the fact that the convulsions are frequently accompanied by symptoms which point to intoxication: as drowsiness, headache, nausea, etc., and also from the fact that epileptiform attacks occur in many conditions of chronic intoxication, especially from alcohol, lead, and in uremia. But epilepsy, due to lesions in the brain, cannot be explained on the toxic basis.

If we should base the known anatomical cerebral changes upon a chronic intoxication, there still remain to be explained the periodicity of the attacks, the storing up of a toxin in the body, and also the hereditary relationship of epilepsy to other mental and nervous diseases. Indeed, these latter facts seem to indicate that *the ultimate and characteristic cause of the symptom-complex, epilepsy, is to be found in morbid conditions of the nervous tissue.*

Symptomatology. — While a few epileptics may produce permanent and even distinguished mental work, in more than one-half the cases intellectual activity is impaired, though proportionally to a less degree than the emotions or volitions. In the majority of cases the degree of deterioration once established remains without marked progress for years or even life, although in a few instances a condition resembling complete dementia may be attained, where patients practically lead a vegetative existence.

In all cases of epileptic insanity there is a *more or less pronounced mental, moral, and emotional weakness*. Orientation is usually normal, and consciousness is clear except in the dreamy states. Apprehension is fairly keen for the daily routine, but attention is somewhat impaired or easily diverted.

Hallucinations are exceedingly infrequent except in the dreamy states, especially anxious and conscious deliria. When found in the intervals, they are generally of a religious character and are not prominent. *Illusions* are quite frequent for a short period before and after attacks of grand mal. *Delusions* are not common except in the dreamy states, where they are accompanied by or dependent on auditory and visual hallucinations, and are almost invariably of an ecstatic or terrifying character.

There is generally a marked narrowness of the mental

horizon, with limited ideation and imperfect association of ideas. In conversation or writing there is a strong tendency to detail and circumstantiality. New experiences are not readily assimilated or thoroughly elaborated, and patients keep in the beaten paths. Their vocabulary may consist largely of set phrases, platitudes, passages from the Bible, proverbs, etc. Their narratives are obscured by a multitude of data and irrelevant or unessential accessories, which greatly impede the progress toward, and development of, the essential points. The connection is not lost, however, and the aim is ultimately obtained by circuitous paths.

The narrowness of thought due to the lack of new experience and a faulty memory naturally leads to a *greater prominence of the self*. This is specially noticeable in the conversation of epileptics, in which they indulge in praise of self and family, and pay much attention to personal matters. The religious content of thought is another striking symptom, many patients spending a large part of their time in reading the Bible, prayer or hymn books, or engaging in prayer. Many attend strictly to religious duties, and a few, especially Protestants, exhort their fellow-patients.

Memory is always impaired, sometimes to a great extent. While prominent events, by dint of frequent repetitions, may be recalled, the recollection of the general course of life, whether recent or remote, is more or less hazy. In distinction from the memory defects found in other deterioration psychoses, patients are able to express clearly and coherently their remaining narrow circles of ideas.

Judgment is invariably impaired in proportion to the amount of mental deterioration. The true relation of

ideas may be obscured or even lost, and often the most senseless and fantastic schemes are devised. Patients never fully recognize the incongruity between their grandiose plans and their limited ability. A man with marked mental and physical defects gravely proposed to study theology; and another, who could hardly name the simplest flowers, desired to become a florist. As a rule, however, epileptics have some *insight* into their condition, realizing that they have convulsions, and cannot remember as well or think as easily as formerly. A few deny that they ever have epileptic seizures.

Emotionally, the majority of patients show great variations, even though intellect may be fairly well preserved. The finer feelings are generally blunted, and ordinarily there exists a rather uniform state of emotional indifference. There is, however, an increased irritability manifested by frequent outbreaks of emotional excitement, as well as sudden alternations from elation to depression, and the reverse. Some patients complain of an "internal anguish," or fear. Many show an extraordinary hope of recovery from their "fits." An interesting feature of the emotional sphere is the fairly constant recurrence at regular intervals of religious exaltation, morbid and baseless fears of illness or death, stereotyped lamentations, or irritability. One patient twice a year spends about two weeks reading the Bible and exhorting his fellow-patients, and for a part of this period is so excited and noisy that seclusion is necessary. Another just as regularly, although in robust health, imagines he is going to die, and with many tears implores the doctor to send for his brother and the priest. Many are very curious and meddlesome, and often get into trouble through their propensity to interfere with others. Epileptics often show increased irritability,

either just before or after a seizure, and at these times more especially are threatening, quarrelsome, violent, and dangerous.¹

Morbid and sudden *impulses* are frequent and characteristic symptoms of epileptic insanity. These are largely due to irritability or lack of self-control. Patients will attack any one who disturbs them, and often in a blind rage suddenly inflict severe and dangerous injuries, even on innocent and inoffensive bystanders, without any provocation. These impulses are by no means confined to the pre- or post-paroxysmal stages, as many suppose, but may arise at long intervals between the seizures. The wild state of blind rage, where patients run amock, striking and assaulting indiscriminately every one in their range, — the characteristic *epileptic furor*, — is a nerve storm which may justly be considered as an “equivalent.” These sudden impulses to violence and even homicide render epileptics especially dangerous. Suicidal impulses are very infrequent, and their accomplishment still more so.

The *conduct*, apart from the morbid impulses above described, is usually good. Epileptics as a rule are neat, orderly, and observe the ordinary rules of propriety unless deterioration is very profound. They often show kindness to others, and when a fellow-patient has a seizure will run to his aid, loosen his neck band, place a pillow beneath his head, and assist in carrying him to his bed.

Some patients display marked sexual excitement, and some are inveterate masturbators. Epileptics show a diminished *capacity for work*, especially where the higher grades of mental and physical training are requisite. They may engage with fair success in simple routine

¹ On the other hand, there are a few patients who for years, or perhaps never, display any mood but one of placid amiability and gentle consideration.

occupations, where little or no initiative is required; but unless carefully directed and watched, are apt to slight their work, or leave it unfinished. Their characteristic instability usually precludes permanent employment. Their physiognomy is quite typical, and epileptic deterioration can often be diagnosed by the experienced observer from the peculiar facies and speech.

Physical Symptoms. — The most important physical symptoms in epileptic insanity are the seizures, which may assume the type of grand or petit mal. In the former there may be an aura, followed by a cry, a fall, and tonic followed by clonic convulsions, usually localized at first, but rapidly extending over the entire body. During the convulsions, which may last from two to ten minutes, consciousness is totally abolished, but returns gradually within a period of a few minutes up to several hours. In *status epilepticus* there may be from twenty to over one hundred attacks of grand mal, without consciousness in the intervals. In petit mal there is a very brief loss of consciousness (usually only one or two seconds), either without any convulsive movements or with very slight ones, which often elude observation. The *reflexes* are abolished during the convulsions, and in some cases are not restored for one or more hours.¹

¹In 1088 observations on male epileptics, made by the writer, the following results were obtained. The normal *plantar reflex* (flexion of toes, etc.) was present in both feet immediately after clonus had ceased, in forty-five, and one hour later in two hundred twenty-six cases; the Babinski phenomenon (extension of toes with dorsiflexion of ankle) occurred in one hundred three cases directly after the seizure, and in one hundred twelve cases one hour later. An extensor response was found in right or left foot in ninety-nine and fifty-three cases respectively, and a flexor response in right or left foot in ninety-nine and two hundred eleven cases respectively; while a *mixed* response, that is, extension in one foot and flexion in the other, occurred in eighty-two cases directly after a seizure and in one hun-

The *speech* of epileptics is often altered and very characteristic. It is abrupt, with intervals after each phrase, often drawling, jerky, or strongly accented. During excitement it may be so rapid as to be indistinguishable, were it not for the fact that a few phrases are repeated over and over again. Organic and functional diseases of the heart are quite frequent, and the pulse rate is often increased. Epileptics rarely complain of headache, and often show an insensibility to pain amounting to analgesia, while their frequent wounds usually heal rapidly.

On an epileptic basis we can recognize the following clinical divisions or forms: *A*, transitory periodical ill-humor (*Verstimmung*); and *B*, dreamy states, in which should be included pre- and post-epileptic insanity, psychic epilepsy, anxious delirium, conscious delirium, some cases of somnambulism, and possibly dipsomania.

A. Transitory Periodical Ill-humor.—In this form the separate attacks bear an extraordinary resemblance to each other. The same complaints, the same delusions, and the same impulses recur. The phraseology of the patients is definite, the behavior characteristic, and the expression similar. These attacks vary in intensity, and often come on in the morning. Sometimes the intervals are so regular that the time of recurrence can be foretold with tolerable accuracy. Patients usually awake peevish, irritable, fault-finding, threatening, and quarrelsome; often commit sudden and unprovoked assaults on the nearest person; break glass or destroy bedding and furni-

dred forty-seven cases one hour later. The plantar reflex was *abolished* in six hundred sixty cases immediately after the convulsions, and in three hundred thirty-nine cases one hour later. The *knee-jerks* were active in three hundred ninety-six cases, moderate in one hundred thirty-seven, and absent in five hundred thirty-nine cases.

ture, and use profane or obscene language. Sometimes they display vague hallucinations and delusions of a persecutory character. While this form usually occurs after a seizure, it may precede it, in which case the convulsion generally clears the mental atmosphere. The attacks rarely last more than a few hours, but in a few cases may persist for a week or more. Abatement is gradual, and is often followed by a striking feeling of complacency, or well-being.

B. *Dreamy States*.—The essential feature of these interesting and important conditions is a more or less profound clouding of consciousness. Very often they are preceded by transitory ill-humors, and in that case there is no sharp boundary line between the two. Alcohol may also predispose to them, even when taken in very moderate quantities.

In *pre-epileptic insanity* all sorts of morbid sensory impressions may arise,—flashes of light, impairment of vision, indefinite or strange sounds, peculiar odors, and paræsthesias,—which are not to be confounded with the individual aura, when such exists. There may be fixed ideas, falsified identifications, monotonous repetitions of words or phrases, involuntary or grotesque movements, and imperative impulses, as to strike, destroy furniture, or kill. In a short time—sometimes a few minutes or even seconds—consciousness becomes clouded, and the convulsion begins. In a few cases the latter passes over into a pronounced dreaminess lasting for hours or days.

Post-epileptic insanity is more common, and is characterized by deep dazedness after the seizure, lasting for hours or even days. Patients do not understand questions, speak confusedly (paraphasia), are completely disoriented, wander aimlessly about, collect all obtainable objects, and

even drink their urine. While lively sensory disturbances are undoubtedly present, no account can be obtained from the patients, who have complete amnesia of all that has happened. As a rule, they recover their normal mental and emotional attitude very gradually.

Mental and emotional disturbances, very similar to the above, may appear in the intervallary periods, entirely independent of the convulsions, and are then called "equivalents," or *psychic epilepsy*. These conditions are by no means rare, and are frequently observed in hospitals. They are more liable to occur in patients who have seizures at long intervals. The essential feature of psychic epilepsy is the disturbance of consciousness. Patients are confused, move and act in a mechanical or automatic manner, and often present evidences of illusions, hallucinations, and delusions. They wander aimlessly about, and do not appear to recognize any one, but will sometimes reply incoherently to questions. Occasionally they assume fixed or peculiar positions, or gaze steadily at one point. In some instances they display a heightened excitement, and again a gloomy stupor, during which they may masturbate, expose their person, or attempt sexual assaults. Patients have been known to set fire to their bedding or furniture for such trivial purposes as boiling coffee, etc. The numerous criminal acts such as theft, arson, assaults, and even homicide, committed during these periods, demonstrate the extreme importance of the recognition of psychic equivalents, in their medicolegal aspect. The history of previous attacks of grand or petit mal, even if very infrequent, the senselessness of the actions, with *utter absence of motive or attempt at concealment*, and either complete amnesia or only a very hazy recollection of what has happened, should make the diagnosis clear. These attacks

usually last only a short time,— seconds or minutes, — but occasionally continue for an hour or more.

Under the head of psychic epilepsy should be included some cases of *somnambulism*, occurring in epileptics. Patients notice only those objects which are directly in front of them. The eyes may be closed, half-opened, or staring. Movements usually display evidences of automatism, but there may be traces of deliberation and purpose, as in avoiding obstacles. Sometimes higher psychic fields are involved, and patients may carry on long conversations, compose poems, or transact business. Next morning they do not remember what they have done, but may complain of lassitude, stiffness, or soreness.

In *epileptic stupor* the clouding of consciousness is intense and prolonged. Patients may eat, speak, or perform certain mechanical movements, but always as if dreaming, and without clear understanding. Sometimes the eyes are closed, or the facies dazed or staring. The same attitude is maintained for hours or even days, and the expression justifies the inference that confused terrorizing delusions dominate the emotional sphere, although occasionally the demeanor indicates happiness or religious ecstasy. Patients show absolute indifference to their environment, never answer questions, remain in bed, and soil themselves. They sometimes show active resistance if disturbed, may make sudden impulsive attacks, and instinctive suicidal attempts are not infrequent. The reflexes are abolished, sensibility is blunted, and in single cases a temporary catalepsy is seen. Nourishment is often refused, either wholly or partially.

Epileptic stupor usually lasts one or two weeks, but in severe cases the course is longer. Recollection of the events is largely or completely lost. Resolution is generally grad-

ual, but in a few cases the confusion may disappear in one day. Where attacks are repeated and prolonged, patients may remain for a long time inattentive and dull.

Anxious Delirium.—This form is more frequent than stupor, may occur independently of seizures, and the mental disturbance is profound. The attack develops suddenly, and may be preceded by very brief periods of ill-humor, characteristic sensations, and numbness, or by fixed and regularly recurring hallucinations, as red objects, flames, etc. Apprehension is dulled, surroundings are changed, and orientation is lost. The hallucinations and delusions are usually terrifying; patients must be punished, must die, are surrounded by devils, animals, or throngs of people who come out of the walls or floor. They wade in blood, their parents are perishing, the house is blown into the air, or everything is sinking. Sometimes God or Christ appears and carries them in splendid chariots to Heaven; but these transports are only transitory, and the predominant tone of their emotions is one of *fear* and dread. Patients are impelled to brutal and incredible outrages, as cutting up their parents or children, shooting, stabbing, etc. They run away to escape the horrors which confront them. With flushed face, either silent, or howling and shrieking, they rage furiously, with prodigious strength, destroying everything within reach.¹

The duration of anxious delirium varies from a few hours to two weeks. Sometimes consciousness clears up suddenly after a long sleep, but usually gradually, so that

¹ One of my patients in his wild furor always ran up and down the hall, screaming, and striking every one in his way, and displaying such enormous strength that it required six men to control him. His attacks recurred regularly every six months, lasted about twelve hours, and were followed by a profound sleep. On awakening he remembered nothing of what had happened. A recent case died from exhaustion on the ninth day.

transitory hallucinations, delusions, and normal ideas are mixed together in a characteristic manner. There is no recollection of events occurring during the height of the delirium.

Conscious delirium is a rare form, which either follows a seizure or appears as a *psychic equivalent*. Patients appear from their conduct to be conscious, but in reality the apprehension is greatly clouded, while numerous illusions and hallucinations may inspire false ideas of danger. Expansive ideas are not uncommon. Answers to simple questions are coherent and relevant, but the whole demeanor, if closely observed, discloses some confusion and disorientation. The disposition is irritable, usually anxious, but sometimes elated, and delusional ideas often lead to impulsive acts. Legrand du Saulle reports the case of a merchant, who, on suddenly recovering from an attack, found himself on the way to Bombay. Others have committed, with seemingly unclouded consciousness, senseless and even criminal acts (thefts, arson, rebellion, desertion, indecent assaults) without any insight into their significance. Attacks of conscious delirium may last for days, weeks, or even months, and there may be a series of attacks separated by short intervals.

Dipsomania in many respects resembles epilepsy, as it presents an apparently paroxysmal and periodical impulse to senseless alcoholic excesses. Among the prodromal symptoms are noted uneasiness, anxiety, fear, despondency, weariness of life, increased irritability, a feeling of heaviness in the head, anorexia, insomnia, and occasionally sexual excitement. Very rapidly after these manifestations there appears an impulsive and irresistible desire to obtain relief, which is found in a "mad rush" for liquor. Some patients develop a typical epileptic *dreamy state*, in which

they become abusive, aggressive, noisy, and undertake foolish journeys. One man had attacks once in two years, when in the space of two days he would drink several pints of whiskey, ultimately becoming completely unconscious, and often, on coming to his senses, finding himself in strange places. After several of these attacks he arranged that friends should take him to a hospital on the first appearance of the prodromes.

Some dipsomaniacs present no typical epileptic disturbances, but in their attacks fall suddenly into a condition resembling inebriety, in which they continue without interruption — day and night — to drink large quantities of beer, wine, gin, or spirits, until they have spent their last cent, and even sold their clothing to obtain means for the gratification of their morbid appetite. During these attacks intoxication is seldom complete, but consciousness is clouded, and patients retain only a hazy recollection of a few events of their debauch, but often manifest deep contrition, and an abhorrence of alcohol. Convalescence is gradual, and sometimes accompanied by nausea, anorexia, gastric catarrh, unsteadiness, and tremors, while a few cases present symptoms of collapse, accompanied by delirium and hallucinations.

The attacks may recur without any external cause, and in the intervals, which may last for weeks, months, or even years in a few instances, patients have no craving for alcohol, and either totally abstain or drink very moderately. There are many transitions or variations from the characteristic picture of dipsomania. Some patients manifest a disposition similar to that of epileptics, and a few perhaps present during life only one instance of an epileptic dreamy state accompanying an attack of inebriety.

Diagnosis. — The diagnosis of epileptic insanity is gen-

erally easy as soon as we can establish the existence of the characteristic convulsions. We must differentiate it from hysteria, dementia paralytica, and the catatonic form of dementia præcox.

In *hysterical insanity* consciousness is less deeply disturbed in the seizures, and we almost never see sudden involuntary falls, serious injuries, or biting of the tongue. The seizures are also specially induced by external influences, as mental emotions, physician's visits, etc., and may be curtailed or suddenly aborted by very lively excitement or strenuous treatment. The development is more diversified than that of the epileptic seizure, which is always uniform. In hysteria, tonic and clonic muscular contractions of the entire body, convulsions of the diaphragm, opisthotonus, jactitation, rolling on the ground, somersaults, lively movements of expression (dramatic and passionate attitudes), alternate even in the same attack, and consciousness is never abolished. Dilatation and immobility of the pupils, usually considered an important characteristic of epilepsy, have recently been found in hysteria.¹

In hysteria we find extravagant caprices, rapid changes of disposition, and dependence on external influences, while in epilepsy there is a rough irascibility, a limited waywardness, an independent periodicity, and a prominent ill-humor. Mental weakness is more frequent and pronounced in epilepsy.

In epilepsy coming on in middle life, we must consider the possibility of *dementia paralytica*, which sometimes begins with epileptiform seizures. Here the consideration of the other symptoms, such as impaired pupillary reflex

¹ Karplus, Jahrbuch der Psychiatrie, XVII, 1; Westphal, Berliner klin. Wochenschrift, 1897, 47.

and inequality, characteristic speech disturbances, ataxia, incoördination, etc., will soon clear up the diagnosis. When, however, the epileptiform attacks occur at long intervals, and are accompanied by one or more of the above symptoms, we should be prepared for the possibly gradual development of dementia paralytica.

The epileptic dreamy state has been mistaken for the initial stage of the *catatonic form of dementia præcox*. In the latter we find negativism, passive resistance, senseless answers, rapid and correct execution of commands, eccentricities, and stereotypy, with absurd acts, and less disturbance of apprehension and orientation. In epilepsy there is anxious resistance with indifference to orders, and uniformity of conduct, while there are frequent assaults, atrocities, and attempts to escape. Special weight attaches to the previous history and the proof of separate attacks of vertigo or syncope, periodical ill-humor, and probable night attacks, as evidenced by occasional enuresis, injuries to the tongue, and severe lassitude or headache in the morning.

The diagnosis of the dreamy states, when only one convulsion has been observed during life, or perhaps not even one, but only a brief syncope, presents some difficulties; but we must remember that while the convulsion is a very important symptom of epileptic insanity, it may be absent, or replaced by an "equivalent." Hence the periodicity of the attacks, clouding of consciousness, morbid impulses, the crimes committed without motive or attempt at concealment, the amnesia, and rapid course will facilitate the diagnosis.

Prognosis. — This depends essentially on the cause of the epilepsy and the time of onset. When dependent on gross brain lesions, recovery is out of the question, and the

mental weakness often progresses to complete deterioration. When following head injuries, some recoveries have occurred, and in many cases decided and long-continued improvement has resulted.¹

Genuine epilepsy may disappear spontaneously, but recurrence is common if life is prolonged, and in the interval there is usually some mental dulness with transient ill-humor. Improvement rarely occurs in cases where the dreamy states, especially stupor, have occurred, if they have been at all frequent. In some cases of anxious delirium death occurs from exhaustion. Conscious delirium is not dangerous to life, but, like anxious delirium, if recurring at short intervals, tends to hasten the progress of deterioration.

In epilepsy arising late in life, the outlook is very unfavorable. On the other hand, in alcoholic epilepsy treatment is often successful in effecting a cure, or at least great improvement. On the whole, while in some cases patients may improve sufficiently to go home, especially where the disturbance is largely in the emotional sphere, the prognosis of epileptic insanity is unfavorable, and patients should be subjected to prolonged observation and treatment before we assume the risk of discharging them from the hospital. The more so, as attacks of furor may occur without any seizures, and thus the patient becomes a danger to the community. As far as life is concerned, we must remember that serious and even fatal injuries may result from accidents occurring during the convulsions, or from the development of status epilepticus.

¹ A small proportion of cases, after years of epilepsy, develop a spastic condition, almost approaching spastic paraplegia, with exaggerated reflexes, spastic gait, incoördination, etc. These cases are accompanied by extreme mental dulness, practically amounting to permanent stupor.

Worcester found that sixty per cent. of epileptics die as the result of their seizures.

Treatment. — When we consider that nearly twenty-five per cent. of all epileptics are descended from an intemperate ancestry, we must urge upon all physicians the great importance of combating the use of alcohol, which not only impairs the mental and physical powers of the parents, but imposes a terrible and unjustifiable burden on their offspring. To prevent epileptic insanity, we must begin with the ancestors. In all cases where insanity develops in epileptics, patients should be committed to a hospital, not only for their own benefit but that of the community.

In cases where there are undoubted cranial injuries or focal diseases, if not of too long standing, a causative treatment should be tried, as trephining, excision of scars, removal of tumors, antisiphilitic treatment of gummata, etc. Usually the results are only transitory, even in cases undoubtedly following head injuries; and after a long duration of the malady the prospect of permanent cure by excision of scars or removal of fragments of bone is very slight. This experience indicates the continuance or gradual development of a general epileptic alteration in such brains. On the other hand, a long-continued improvement may result from simple ventilation of the brain by trephining, without any further encroachment on its substance. Any sources of reflex irritation, as nasal polypi, carious teeth, ingrown toe-nails, and the like, should be removed.

The nutrition should be fostered by careful attention to the state of the alimentary system, and the diet carefully regulated. To exert a permanently favorable influence on metabolic assimilation, and particularly to

prevent the excessive increase of uric acid, Haig gives practically a vegetable diet, — milk, farinaceous puddings, and vegetables, — and prohibits meat, bouillon, tea, and coffee. Agostini recommends a more varied diet, as he thinks a strictly vegetable diet will cause injurious stomach troubles. Notwithstanding the various views on this subject, on the whole there is a positive benefit in the avoidance of an *excessive meat diet*.

The reduction of salt has been recently suggested, not only to diminish the irritability arising therefrom, but to enable us to materially decrease the amount of bromids. It is said that this method diminishes by one-half the chance of bromin poisoning. At the Craig colony for epileptics a dietary largely composed of milk, eggs, potatoes, farina, rice, chicken broth, boiled or roasted beef unsalted, etc., has been tried with excellent results. An occasional meal with a small and definite (6–8 grains) amount of salt may be given. The kidneys require attention, and the secretion of urine should be stimulated by copious draughts of water or other innocuous remedies. In selecting forms of physical exercise, care must be used to avoid undue strain on the heart. The skin should be kept in good condition, and occasional hot baths employed to induce perspiration.

It is very important to insist upon complete and permanent abstinence from alcohol in all cases, and not merely in alcoholic epilepsy and dipsomania. Every epileptic is more or less intolerant of its effects, very severe mental and emotional disturbance occasionally results from its use, and nothing is to be gained from it in any case. In dipsomania, absolute abstinence is the only available remedy. In many cases not only do the dangerous ill-humors become harmless, but less frequent, and finally

disappear. In addition to careful attention to the bodily health and avoidance of irritants, suitable occupation, preferably in the open air, is a valuable adjuvant. While innumerable remedies have been used to control or abort the seizures, their utility is somewhat doubtful, since the convulsions are practically safety valves, which allow the elimination of toxins. Unless the cause can be removed, it is perhaps better to allow the *insane* epileptic to have his fits, as they often clear the mental atmosphere. Nevertheless, in the present state of medical and lay opinion, it is advisable, in every case, at the *beginning*, to administer the bromids, either singly or in various combinations, with proper precautions, until after due trial we can decide from the general condition of each patient—mentally, emotionally, and physically—whether or no it is best to continue their use. They should be given at the start in very small doses (6–8 grains) three times daily, after meals, in plenty of water, gradually increasing the amount until the point of saturation is reached, which is indicated by the disappearance of the throat reflex. Then the dose, which varies with the individual, should be reduced more or less gradually until we establish a norm which can be continued for a long time, even years, with occasional short interruptions. In single cases the epileptic disturbances disappear, not even returning when the medicine is suspended, and we may perhaps regard the case as cured. It must be borne in mind, however, that in a certain number of cases the seizures cease spontaneously without any treatment, not to recur for years, if ever. Hence we must not attach too much importance to the curative power of the bromids.¹

¹ In the writer's experience it has been found that the fewer insane epileptics who take bromids, and the smaller the dose, the less irritability, vio-

Should bromism occur, as evidenced by acne, digestive disturbances, bronchial disorders, cardiac weakness, abolition of the reflexes, anæsthesias, impairment of memory, stupor, etc., the bromids should at once be discontinued, and an eliminative and supporting treatment instituted, — free and regular evacuations of bowels and bladder, promotion of normal skin action, and the use of digitalis and strychnin in small and decreasing doses, supplemented by absolute rest in bed, and a simple, easily digested diet.

Among the other countless remedies employed to control the seizures may be mentioned argenti nitras, brom-ethyl, atropia, oxid of zinc, borax, adonis vernalis, and the Flechsig treatment by a regular course of opium in increasing doses, followed by bromids, with rectal lavage, and strict confinement to bed. While all these have given satisfactory results in some cases, none are so generally useful as the bromids, but may be tried where the latter fail.

The *status epilepticus* is not very frequent in insane epileptics. When it occurs, compression of the carotids should be tried, if the arterial tension is excessively strong; and enemata of chloral hydrate, morphia, and bromids should be administered. Prolonged hot baths are also of value.

Finally, in view of the liability to injuries and the tendency to sudden violent impulses, every epileptic should be under constant surveillance at all times, night and day.

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HYSTERICAL INSANITY

HYSTERICAL insanity is a psychosis arising from a psychopathic constitution, characterized by *great instability of the emotions, defective will power, and heightened self-consciousness, upon which there appear, with great ease and rapidity, crises or attacks with a great variety of mental and physical symptoms, including dreamy states, anæsthesias, paræsthesias, paralyses, convulsions, and anomalies of secretion.*

Etiology. — Hysteria develops upon a morbid constitutional basis. Defective heredity occurs in seventy to eighty per cent. of cases. An equally important factor is the influence of defective education and training. Other factors are trauma, shock, acute and chronic diseases. Mental stigmata are often recognized in early life, as irritability, waywardness, indolence, talkativeness, undue piety, and sudden and rapid changes of emotional attitude. Sometimes such physical disturbances as chorea, headache, and defective speech have been noted. More than two-thirds of the patients are women. In children,¹ in whom the disease is more prevalent among males, individual symptoms may be more prominent, as mutism, reflex convulsions, paralyses, and attacks of screaming, convulsive coughs, and dreamy states.

The rôle played by the disturbance of the female sexual organs in the production of the disease is not clear. On the one hand, we have the observations, that disturbances

¹ Bruns, *Die Hysterie im Kindesalter*, 1897.

of these organs do produce severe physical and mental disturbance without creating hysterical symptoms, that the disease sometimes appears long before puberty, and finally that it develops in individuals with normal sexual organs. On the other hand, we know that frequently uterine disturbances are present, and that their relief, as well as the removal of the healthy organs, may bring about a marked improvement. For these reasons it seems probable that disturbances of the female sexual organs act only as prominent exciting causes.

Pathology. — The nature of the disease is still unknown. Some investigators hold that, primarily, the disease is not an affection of the brain. Biernacki, judging from his investigations into the condition of the blood, believes that the cause of the disease may be found in its defective oxidation. Vigouroux places hysteria with epilepsy and periodical insanity, regarding them all as due to a gouty disturbance of metabolism. These explanations appear inadequate and inconsistent with our clinical and etiological experience, because they overlook both the intimate relation of hysteria to other forms of psychopathic degeneracy and the apparent psychological origin of the individual symptoms.

Charcot and his followers and many other investigators look upon the disease from the side of the psychological phenomena. They, in investigation of the paralyses, the various sensory disturbances, and the dual personality, have ascertained by means of ingenious experiments that parts apparently devoid of all feeling can release ideas and movements without making an impression upon consciousness, and further that such reflexes result in movement more rapidly than those which are voluntary and conscious. Janet speaks of a disruption of consciousness in the sense

that different fields of sensory experience can lose connection with the states of consciousness. Sollier has recently accepted a partial sleepy state, a hysterical somnambulism, basing his conception on the fact that just as in sleep many impressions influence our dreams and movements without arousing any conscious perception or ideation, so in hysterical states, while part of the brain sleeps, there are sensory fields which receive and react to stimuli. The same applies in the production of paralyses in the motor field.

The shortest and best explanation is that offered by Moebius, who characterizes hysteria as a congenital morbid mental state, in which diseased conditions of the body are produced by ideas, to which should be added the statement that these ideas are strongly emotional and sometimes of an indefinite content. This accounts for the fact that the physical disturbances do not always correspond to the character of the stimulus or to the content of the ideas, that they can appear in fields not accessible to the influence of the will, and, in fact, that sometimes they are not even noticed by the patients. These are well-known facts, and are recognized as physical accompaniments of the feeling. The internal relation between sadness and tears is no better understood than that between fright and hemianæsthesia. Terror can cause a movement of the bowels and whitened hair, just as hysteria can produce edema and disturbances of the heart's action. Even clouding of consciousness may be brought about by states of feeling; while it must be confessed that hysteria cannot be entirely explained in this way, yet it seems probable that the increased emotional excitement and the greater prominence of the involuntary expressions which accompany it play an important rôle in the production of the disease.

There is no known anatomical pathological basis for the disease.

Symptomatology. — The symptoms are divided into the psychical and the physical. The psychical symptoms first described are those characteristic of the psychopathic basis and are continuously present, occupying what many writers call the interparoxysmal period, while the dreamy states characteristic of the crises or attacks occupy, according to them, the paroxysmal period.

Psychical Symptoms. — Apprehension presents no striking disturbances, in fact, many patients are unusually sensitive. They have a keen perception for details, and especially for any defects. A few patients show unusual gift in some fields, especially scientific. Often a striking feature is lack of sound judgment, although the patients appear vivacious and bright upon superficial examination. They are easily attracted by anything new or striking, become the clients and champions of the most recent physician, and adopt peculiarities in dress and ornament. This is especially true in the field of religion. They enjoy anything sensational, and take pleasure in gossip and in all sensuous enjoyments.

The *memory*, although occasionally one-sided, is unimpaired. That which is perceived is not always correctly interpreted. In some cases there is a tendency not only to amplify events of the past, but even to distort them by pure fabrications, and this is especially noticeable in attempts to elicit sympathy and create sensation. Startling statements without any foundation are often rehearsed to the physician. One patient described in full an epileptic attack from which, in reality, she never suffered, and another told of a trance of three weeks' duration, during which she knew nothing. It is sometimes

difficult to say how much of this is intentional deception, and how much is due to the subjugation of memory to a lively imagination. In some cases, no doubt, the imagination dominates entirely all thought and action without creating the picture of a real delusion.

The disturbance of the *emotional attitude* is a most prominent element. Its fluctuation determines to a large extent the whole mental life of the patient. Normal control is wanting: the patients are excitable, are responsive to everything, are impelled to take a personal interest in everything in their environment, and there is a tendency to show emotional outbursts at very trivial affairs. Occasionally there is heightened sexual excitement, which may lead to debauchery. Frequent and abrupt changes in the emotional attitude are characteristic. One never knows where to find the patients: they pass abruptly from a state of merriment into passionate anger; at one moment they may be distastefully sentimental, at the next crotchety and antagonistic. This increase in the emotional excitability is probably a cause of the concentration of thought upon self. The more quiet contemplation of external affairs is disturbed by an excitable emotional tone the more strongly is the attention attracted to self, and in this way the patients become self-absorbed. Some even derive pleasure in meditating over their own ill health.

In this way *hypochondriacal ideas* originate and gain prominence; trifling feelings of discomfort receive exaggerated attention, and may give rise to the sensation of great pain. Any genuine complaints are greatly exaggerated by the imagination of the individual until hypochondriacal ideas are evolved. Real pain arising from any cause fails to disappear with the removal of the cause, but continues indefinitely, and may even increase in inten-

sity. The headache, backache, and perhaps vertigo, coincident with menstruation or with anæmia, may be the nuclei from which there arises a malady, the symptoms of which the patients rehearse with great clearness and in all detail on every possible occasion.

The patients develop a most remarkable attitude toward their disease, about which their whole life seems to centre. They become fond of and even proud of invalidism, finding in it a source of entertainment. This becomes the more evident in the failure of coöperation in treatment. Although complaining bitterly, they lack all feeling of personal responsibility in carrying out treatment, and may even stubbornly refuse to help. However, any new or striking method of treatment, although it entails some suffering, will be undertaken for the sake of publicity. Many continue to enter into the enjoyments of life, attend entertainments, and receive much company, in spite of the claim that their suffering is even enhanced by such endeavors.

Very often morbid ideas cause anxiety and despair; terrible thoughts constantly torture them; ungrounded fears, frightful dreams, alleged hallucinations, — sexual assaults, ghosts, assassins. These are depicted on every occasion with great show of emotion, but not without emphasizing their own heroic struggle and martyrlike submission. Occasionally they utter threats of suicide, to end their miserable existence, sometimes even making melodramatic attempts, such as tying a ribbon about the neck or jumping into shallow water. One patient drank a small quantity of shoe blacking, and claimed to have swallowed several pins.

Some patients demand early and constant medical attendance, and cannot be satisfied unless they have regu-

lar daily visits and prompt response to hurried calls in the intervals. In this way some patients develop a state of absolute dependency upon one physician. On the other hand, it is not unusual for them to change frequently from one physician to another, visit celebrities, and ask for many consultations. Often in going the round of physicians they fall into the hands of quacks who pamper and gratify them by offering some wonderful cure, which, however, is as transitory as it is striking in its results.

The patients are markedly *self-conscious*, and display a corresponding lack of regard for other and common interests. They perceive with morbid acuteness any encroachment upon their own comfort, but accept the most extreme sacrifice on the part of others as a mere matter of course. They are always exacting beyond reason, dissatisfied with the best efforts of others, and deeply grieved over neglect or lack of sympathy. The insatiable wants of many hysterical patients develop as the result of this heightened self-consciousness. Dissatisfied with what they have, they are constantly asking for something new, usually things difficult to obtain; new furniture, new quarters, new clothing, different food, etc. It is often surprising to see how undeserving patients successfully establish intimate relations with churches, societies, and well-meaning philanthropists, who gratify the most unreasonable demands. They regularly tyrannize over the family.

In the domain of *will* there is an increased susceptibility to external influences. The patients yield readily to evil, and rapidly become enthusiastic in any cause. Yet at times they may be extremely obstinate and headstrong in their purposes. Some subject themselves to pain and great discomfort, and even torture for insufficient reasons, refusing to take nourishment or perhaps to speak. This

apparently opposite state of the will in reality arises from a pliancy to accidental influences; sometimes external sensations, at others personal fancies.

Impulsive actions arise from the same source, being the result of a sudden outburst of the emotions, or of a pleasurable inclination. The *conduct* of the patients in consequence of this is unstable and erratic. They change rapidly from one purpose to another, without sufficient reason, and may even present some restlessness which stands out in strong contrast to their physical weakness and helplessness, and they long for adventure. In manner they are at times vivacious and frank, at others reserved and bashful, or again silly and sentimental. They are demonstrative and often express themselves in the most exaggerated terms. Their vehemence of expression by no means always corresponds to the intensity of the emotion, as the latter often fluctuates rapidly from one state to another. The patients characterize their own condition by such expressions as, most horrible, excruciating, inexpressible; and in depicting their suffering it is not unusual for them to add color to the description by copious weeping or even fainting. In spite of this intense misery the thought of self-enjoyment usually remains in evidence. One patient, after filling several sheets of her home letter with the most horrible self-imprecations, closed with the request for macaroons.

The capacity for employment is impaired, the patients have no disposition for earnest and strenuous occupation, lack perseverance, are weak and easily exhausted, and always feel that they must spare themselves. On the other hand, they pass much time with trifles, arranging and rearranging pretty ornaments in the rooms, dilly-dallying with their toilet and personal adornment.

These mental symptoms of hysterical insanity give only a general picture of the psychical disturbance. Individual cases always present their own peculiarities, in which there is usually a predominance of one set of symptoms. Some investigators claim that these psychical symptoms really have nothing to do with hysteria, but are only a part of a degenerate state which may or may not be associated with hysteria. There can be no doubt but that characteristics of degenerate states appear in various hysterical manifestations. The basis of hysteria lies in poor hereditary endowment and defective development, from which it seems impossible to dissociate the characteristics of the psychic states, which really form a part of the same disease picture. In view of this conception, it is impossible to distinguish between the hysterical and the degenerate states by neurological data alone. A difficulty seems to arise in the mild cases, in which the neurological symptoms are unaccompanied by the psychic symptoms characteristic of hysterical insanity. A similar condition, however, exists in epileptic insanity, where the mild cases fail to present the characteristic psychic symptoms.

Physical Symptoms. — The physical symptoms of hysterical insanity are more readily recognized, and naturally regarded of more importance. These functional disturbances, a detailed description of which will not be entered into here, are paralyses of different limbs, choreiform movements, contractures, localized and general convulsions, aphonia, impairment of speech, numerous sensory disturbances, including paræsthesia, anæsthesia, hyperæsthesia, and visual disturbance; globus, clavus, singultus, fainting fits, loss of appetite, obstinate vomiting, disturbance of respiration, and anomalies of secretion. It is characteristic of all these symptoms that they do not fol-

low anatomical and physiological rules, but are dependent in their appearance, persistence, and departure upon psychic influences. Hemisclerics or convulsive movements can often be made to disappear by pressure upon the eyeballs. Contractures or paralyses may be made to vanish by firm pressure over the ovaries or in the hypogastric region, or by an unexpected dash of cold water upon the face or body. Patients who for years have been bedridden, reduced to a skeleton by fasting and secretly inflicting wounds upon themselves to incite sympathy, may be immediately transformed into an entirely different individual by a sharp command, new environment, or some sudden freak. But this transformation is usually short-lived, and the patients return either to their former or still more distressing conditions. A prominent characteristic often encountered, and which tends to substantiate the idea of feigning, is the disappearance of the symptoms when the patients are free from constraint, believing themselves unobserved, only to reappear as soon as their illness is referred to or when confronted by the physician. One is further encouraged in the belief that there is much dissimulation by the efforts of the patients to produce ulcers, to prick the gums in order to make bloody sputa, and to devise means of removing the feces unobserved, in order to convince the physician that the bowels are occluded. We would certainly be short-sighted if we did not see in these premeditated actions the expression of a disordered mind.

Of the **transitory psychic disturbances** the *dreamy states* are the most prominent. These are characterized by a marked clouding of consciousness, of longer or shorter duration, which may either follow, take the place of, terminate in, or be interrupted by a convulsion.

The patients lie quietly with relaxed limbs, occasionally

showing a slight tonic rigidity, breathing quietly, and with a slow pulse rate, the eyes turned upward or rotated laterally. They are irresponsive except to a powerful stimulus, such as an electric shock or sudden terror, which sometimes entirely arouses them. Such a condition, interrupted by occasional convulsions and short lucid intervals, during which food can be taken, may last from a few hours to three weeks.

Sometimes the dreamy state simulates ordinary sleep, when the patients become drowsy and lie down, the eyes close and limbs become relaxed, as in a profound sleep, with deep and regular respiration. It is usually of short duration, and the patient awakes gradually with no recollection of the interval.

These attacks form transition states into *somnambulism*, which occurs during the natural sleep of hysterical patients. The patient leaves his bed, wanders about the room, opens the window, and does many peculiar acts, all of which are well coördinated. Sometimes he destroys clothing, hides objects, or sets fire to furniture; later he returns to his bed, and arises the next morning with only a confused recollection of what has happened. Similar attacks may occur during the daytime, either independently or in connection with a convulsive attack, a fit of laughing or crying. The patients then walk about, muttering unintelligibly to themselves, oblivious to the environment, and not the least distractible, although able to avoid obstacles. It is very difficult to arouse them from this state, even by the application of powerful electrical currents.

Another form of the dreamy state appears in connection with the delirious excitement of a severe hysterical attack. There is a marked clouding of consciousness with many hallucinations. The patient is transported into

beautiful surroundings, has visions of heaven, sees God and the angels, or undergoes frightful experiences, enduring the agony of a public electrocution, or of slaying a dear friend. While in this state his manner, expression, and movements are indicative of joy or agony. One of my patients in such a state of ecstasy greeted the physician as John Ruskin, and another as the Apostle St. Paul, describing the beauty of her surroundings with great fervor; another ran to escape a posse of officers, who were in search of her for the killing of her sister.

In the younger patients there appears still another form of the dreamy state, in which the clouding of consciousness is moderate, and does not prevent a recognition of their environment. The patient usually exhibits a happy, unrestrained mood, sometimes with marked silly behavior. He performs all sorts of foolish, wanton pranks, screams, imitates the cries and behavior of animals, and scrambles about. The real morbidity of this apparently conscious behavior becomes evident when, as occasionally happens, it is suddenly terminated by a light convulsive seizure, and then, without memory of the foregoing behavior, the patient passes into a short period of depression.

The memory of the events during these different dreamy states, as well as occasionally for events just prior to the onset, is always much confused, and sometimes completely abolished. In some cases there are encountered examples of a sort of dual personality, in which the recollection of previous attacks occurs only during subsequent ones, it being completely lost in the interval. It also may happen that during an attack a particular period of the patient's life is lived over again, similar to experiences in the hypnotic states. Such alterations in personality arise only under the influence of autosuggestion.

There still remains to be described mental disturbances of shorter duration occurring during the course of hysteria. These states are characterized by a gloomy and anxious mood, sometimes accompanied by delusions of self-accusation and indefinite hallucinations. Conditions of excitement arising as the result of jealousy, spite, and the like, more frequently appear in the form of passionate outbreaks with violent abuse, and sometimes a tendency to destroy objects, or even to smear themselves. These usually pass off in a few hours. Sometimes they recur in connection with the menses.

Course. — The course of the disease is usually protracted, sometimes extending over many years. In women especially, the onset of the disease is early, frequently appearing at the age of puberty. In contrast to the prolonged course of the disease, the individual symptoms may show the greatest variation in appearance and prominence. One of the most marked characteristics of hysteria is the rapidity and abruptness with which the symptoms change. Usually there is a series of attacks which last but a few hours or a few days. Yet when one considers depressed, excited, and dreamy states, and physical disturbances, there is usually a variegated picture extending over considerable time. The course of the disease in children and in men is apt to be far more uniform, with little variation of the individual symptoms.

Diagnosis. — The diagnosis is far more difficult in hysteria in the male, and especially in differentiating the *constitutional psychopathic states*. In the latter the course is more uniform, and the dreamy states and various physical symptoms are not encountered. The *traumatic neuroses* are characterized by a far more uniform development. In differentiating *congenital neurasthenia* it must be remem-

bered that it presents only psychical symptoms. The differentiation from *epilepsy* has received sufficient consideration under that disease.

Prognosis.—While the prospects are good for the disappearance of the several attacks, it is not as favorable for the future of the patient, who is very apt to suffer from a recurrence of the same, or other hysterical symptoms, on later occasions. Hysteria in children is decidedly more hopeful, as the symptoms usually disappear with development, leaving perhaps only a weakened power of psychic resistance. Occasionally remarkable cures are effected by the removal of prominent exciting causes, as diseases of the sexual organs, injurious environment, and *improper hygiene*. In male patients hysteria with hypochondriacal complaints is resistive to all modes of treatment.

Treatment. — The disease, developing as it does upon a psychopathic basis, demands prophylaxis in the way of care of the pregnant mother, and careful supervision of the education and training of children of psychopathic parents. The pregnant neurotic mother should avoid all forms of excitement and sources of fear and worry, and conform as closely as possible to a life of mental equanimity. The child, especially if it shows a tendency to insomnia with night terrors, or restlessness and evidences of unnatural excitability and precocity, must be removed from the presence of a hysterical mother, who is naturally least fitted for its training. Such pernicious environment, where the child is subjected to emotional outbursts and fits of temper, and besides must witness other hysterical symptoms, has an indelible effect, particularly in the formative period between the fifth and twelfth years.

Relieved of such surroundings, the main object in the education should be the development of physical strength

and vigor, and the maintenance of an effective state of nutrition. For this purpose, plenty of out-of-door exercise, with an abundance of sleep and wholesome diet, must be prescribed in connection with a discouragement of all elements of precocity in the mental, moral, and sexual life, and inculcation of self-control and the nobler sentiments. The same care must be continued during the period of puberty and youth, but should include advice in relation to sexual matters, sentimental love affairs, and later to the assumption of the duties of early married life, especially sexual relations.

In the treatment of the disease itself the element most essential to success lies in the personality of the physician, who must inspire the patient with confidence, and secure the coöperation of the family. Except in the lighter cases, it is of first importance to isolate the patients and establish a suitable routine in the mental and physical life, thereby removing from the environment the disturbing factors which have always been a source of annoyance, and have acted as exciting causes. This isolation, although best carried out in a small, well-selected sanitarium, under the direct supervision of a physician, can be accomplished, with the aid of an efficient nurse, at the home. At all events the patient must be given over entirely into the hands of the physician, who establishes confidence and control, not by harsh and dogmatic opposition, but by gentle persistence, in which he must combine firmness and even boldness. This accomplished, he is in a position to bring about great improvement, and often recovery, by simple remedies. Attention should be directed to any possible organic disturbances in the stomach, intestines, kidneys, heart, lungs, and sexual organs. Iron should be prescribed in anæmia, and restoratives employed in

conditions of emaciation, as well as bitter tonics for anorexia.

On the other hand, mechanical therapy must be relied upon to produce the best results. Of the mechanical measures the most important are hydrotherapy, electricity, massage, exercise, and employment. In the use of hydrotherapy Collins regards the tonic bath the best, in which the water, at a temperature varying from fifty-five to sixty degrees is applied under from fifteen to twenty pounds pressure for from four to five seconds, followed by a Fleury spray of eighty degrees and similar pressure, for one to two seconds. In the use of the bath hysterogenic zones must be protected. The reaction should be facilitated by passive movements, walking, or gymnastics, for one half-hour following the bath. Where this bath fails to produce the desired effect, or is not well borne, he suggests the use of the Scottish spray. It is always desirable, when possible, to avail oneself of a hydriatic institution for these purposes. The treatment can be accomplished, however, in the house supplied with water under sufficiently high pressure by the simple use of a detachable hose and a tube. This should always be under the direct supervision of the physician, who will find it necessary to vary the details of the treatment according to individual cases. When the bath is not accessible the drip sheet may be used, the description of which may be found under the treatment of acquired neurasthenia.

In the application of electricity the faradic current is of most service in improving the nutrition and in relieving anæsthesia and hyperæsthesia.

The daily routine of the hysterical patient should be one of activity, alternating with rest and relaxation, including massage, gymnastic, and out-of-door exercise,

combined with some sport which tends to increase self-reliance.

There are a few cases which require surgical treatment for the alleviation of organic disturbances in the sexual organs, especially where the symptoms of the disease seem to bear a definite relation to the menstruation. Removal of slightly diseased or even normal ovaries have produced improvement in a few cases, but it is the general verdict of to-day that this drastic procedure has more often been of detriment than benefit, and should be discarded.¹

Hypnotism is of limited value, because those susceptible to hypnotic suggestion are apt to be influenced by any powerful suggestion that happens to be presented. Furthermore, hypnotic experience brings about an undesirable dependency of the patient upon the physician, which makes impossible an effective subjugation of their own wills in the strife with the morbid influences. The greater the influence exerted, the more easily autosuggestions arise, and the quicker the efficacy of the hypnotic suggestion is nullified by other and opposing ideas. In mild cases, and especially in children, suggestive therapy is of considerable importance in overcoming individual hysterical symptoms, such as paralyses, sensory disturbances, and tremor. On the other hand, simple suggestion is a therapeutic measure of great value in every case, and often suffices for the complete disappearance of paralyses, contractures, aphonia, etc.

In the treatment of the hysterical attacks, the patient can often be restored to clear consciousness by a brisk command, or, if this fails, by a dash of cold water upon the face, by the electric brush, or pressure over the ovaries

¹ Angelucci, e Pieracini, *Rivista sperimentale di freniatria* XXIII, 290.

or upon the hysterogenic zones. In very severe cases inhalations of chloroform may be necessary.

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TRAUMATIC NEUROSES

TRAUMATIC NEUROSES is the name applied to a symptom complex arising as the result of trauma, characterized by a gradual appearance of numerous motor and sensory symptoms and mental depression of prolonged duration. The trauma may occur in the form of fright, intense anxiety, a fall or an accident, especially an explosion or a railroad accident.

Cases of this sort were first recognized and well described by Erichsen in 1886, but it was not until the work of Oppenheim and Struempell appeared in 1889 that the disease was clearly differentiated and received its present name. The recognition of such a disease has always met with more or less opposition, especially from the French writers, and more recently from Schultze, Hoffman, and Mendel, who maintain that the disease is either hysteria or neurasthenia of traumatic origin.

Etiology. — At present there is no adequate explanation of the pathology of the disease. Westphal and his school consider that there is an organic basis, to be found in changes of the central nervous system. Charcot regards the disease as closely related to the hypnotic conditions, because the disease picture wholly resembles the picture of a firmly rooted autosuggestion. The psychical origin of the disease is still the generally accepted view. This view is substantiated by the fact that the neurosis sometimes appears without known injury, as when following fright or slight injury not received upon the head; and, if

received in an extremity, the manifestations of the disease are not necessarily limited to it, but may be general.

In cases following head injury some contend that a delicate pathological change occurs in the cortical neurones. Experimentation upon test animals, in which definite pathological lesions in the neurones can be produced by concussion without severe injury, would seem to verify this supposition.

It is a question whether the emotional disturbance at the time of the accident should be regarded as the cause, as very frequently weeks, and even months, elapse between the accident and the appearance of the first symptoms. An equally important factor in the minds of some investigators is the psychical influence of membership in an accident insurance society, of possible indemnities and suits for damages. In cases where these factors exist the neurosis seems to run an unfavorable course. At any rate the symptoms regularly worsen until settlement is reached, when they improve rapidly and often entirely disappear. Added to the emotional disturbance over the injury, pain and anxiety for the future, there also appears a desire to obtain as large damages as possible, a tendency to overdo misrepresentations, and to remain incapacitated longer than necessary, while anxiety about the trial and the uncertainty of the outcome, which may extend over considerable time, prevent the rest and quiet which are always essential to improvement.

Another element of importance is the defective constitutional basis, in which alcoholic intemperance plays a considerable rôle.

Symptomatology.—The symptoms develop gradually in the course of a few weeks or months following the shock, and consist chiefly in a condition of *despondency*

with anxiety, fear and loss of the power of both physical and mental resistance, noticeable especially in the inability to undergo strain. The patients become quiet, depressed, apprehend with difficulty and take little interest in the environment. Thought becomes unusually uniform and sluggish, and centres about the accident, which the patients refer to over and over, and often describe in detail, laying stress upon their "hard luck," present deplorable condition, and hopeless future. Sometimes compulsive ideas and agoraphobia appear, but hypochondriacal ideas are apt to be more prominent. The patients cannot rid themselves of thoughts of the accident, and believe that they have been severely injured, because they are not the same, are always tired, exhausted, and unable to work. They show a tendency to observe carefully everything about their physical condition which may have had connection with the injury.

In *emotional attitude* they are very irritable, sensitive, and easily thrown into a state of perplexity or confusion, are unable to express themselves with perfect coherence, and always feel embarrassed by a sensation of anxiety and inward oppression, which may lead to passionate outbursts and even suicidal attempts. The *memory* in spite of complaints to the contrary is good, if one makes allowance for the lack of interest in the environment and the faulty attention. The capacity for work is greatly hampered by hypochondriacal notions and the numerous nervous complaints. The psychical symptoms here enumerated usually do not become more prominent. Occasionally there appear dreamy states or acute hallucinatory excitement. Mental impairment, if present, is usually due to genuine head injury.

Physical Symptoms. — The sleep is disturbed by anxious

dreams, the appetite is poor, and the nutrition becomes impaired. The patients complain of various sensations in the head and back, and especially of paræsthesias and pain in parts of the body, which may have been injured at the time of the accident. The pain, which is usually the most prominent symptom, is persistent and troublesome, and may lead to immobility of the parts. Besides this there may be ringing in the ears, loss of strength, palpitation of the heart, difficulty of urination, and sometimes obstinate vomiting. Some cases present objective symptoms, such as areas of analgesia, hyperæsthesia, constriction of the field of vision, and difficulty of hearing, also increase of the tendon reflexes, paralyses, slowness and uncertainty of movement, disturbance of gait and speech, and some tremor. Tremor, especially of the fibrillary type, is often present, being either general in character, or involving muscles of the paralyzed part. The paralysis may be either of the form of hemiplegia or paraplegia, in which the facial and hypoglossal nerves are seldom included. The paralysis almost always occurs on the *same side* as the accident, and is frequently accompanied by contractures. There is often an acceleration of the pulse and sometimes of respiration following emotional disturbance, pressure on the painful points, or muscular exertion. Occasionally, also, vertigo, or even epileptiform attacks, may be produced in the same way. Localized muscular spasms and convulsions are much more common. Vasomotor disturbances are encountered, as localized blushing, cyanosis, and dermatography. The sensory disturbances, both subjective and objective, are usually in the same side of the body as that on which the trauma was received. Of these hyperæsthesia is the most frequent. All of these disturbances are to be dis-

tinguished from those accompanying organic disturbances in the brain by their broad extent, changing condition, and the fact that they worsen under the influence of emotional and physical disturbances. To this Friedmann adds the further characteristic that the patients have little resistance for alcohol, galvanization of the head, and compression of the carotids.

Diagnosis. — The diagnosis is not only difficult, but sometimes impossible. The disease may be distinguished from *hysteria* by the uniformity of the symptoms in a given case; the patient does not present a variegated change of symptoms, caprice, pronounced alterations of disposition, and desire for undertaking something new, though a similar uniformity in the symptoms may exist in male hysterical patients. There is not the same pliancy, nor are the symptoms as transient as in *hysteria*, yet in this respect they remind one of a few hysterical patients with a persistent autosuggestion; but even here we would expect to encounter characteristic hysterical attacks and dreamy states. In distinction from the *constitutional psychopathic states* the psychosis has a more or less sudden onset, depending upon an injury, and runs a more favorable course.

The greatest difference of opinion exists in reference to the frequency of *simulation* and its detection. Unfortunately the various objective symptoms, the constricted field of vision, the acceleration of pulse, the increase of tendon reflexes, and the absence of galvanic excitability, are of little value in establishing a positive knowledge of the existence of a psychological disorder. Fear of deception, however, is always over-estimated by the physician. It is useless to attempt to unmask deception by the presence of any one symptom or group of symptoms. The detec-

tion of simulation must depend upon the conformity of the whole clinical picture to one of the known disease symptom groups.

Recently the attempt has been made to prove some of the symptoms by means of psychological tests; as, for example, the power of apperception, diminution of the ability to figure, the susceptibility to training, and especially fatigue. Experience with many normal persons of different grades of education in these particulars gives the necessary basis for the decision.

Prognosis. — The lighter cases of traumatic neuroses which appear soon after the accident may improve rapidly, but even among these there are some with a long course and an unfavorable prognosis. Yet the duration of many months, or even a few years, may end in recovery or great improvement. The prognosis is less favorable where there are pronounced focal symptoms, or in the presence of general arteriosclerosis.

Treatment. — The first indication is to dispel as far as possible all ideas of litigation. Next to this, employment is of the greatest value. It often happens that the symptoms of the disease disappear rapidly as soon as litigation is settled, or as soon as the patients are compelled to go to work again. A residence in an institution with the opportunity for employment and distraction frequently serves to bring about great improvement or recovery. In all cases there should be an application of hydrotherapy, massage, exercise, electricity, and hypnotic suggestion, as well as dietetic regimen.

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CONSTITUTIONAL PSYCHOPATHIC STATES

IN these psychopathic states, which include congenital neurasthenia, compulsive and impulsive insanity, and contrary sexual instincts, the fundamental symptom is to be found in a continuous morbid elaboration of normal stimuli. They develop upon a psychopathic basis, and in common present a morbid misdirection of thought, feeling, and will throughout life. At the same time there appears a mixture of the normal with the abnormal state, seen in the inconsistency between the clearness of thought and insight into propriety on the one hand, and the sudden unwarrantable changes of disposition and peculiarities of actions on the other, which gives one the impression of disproportion and distortion. Physical stigmata are common.

CONGENITAL NEURASTHENIA

Congenital neurasthenia is characterized by a perverted tone of feeling, increased sense of fatigue, distractibility, depressed emotional attitude, indecision in conduct, without involvement of intellect or consciousness.

There is always present a perversion of the tone of feeling, and a greatly increased sense of fatigue. While the patients are capable of taking up a piece of work with intelligence and skill, they tire quickly, demand frequent rests, and are quite unfit for steady application to mental or physical work, because of resulting headache, insomnia, or general malaise. There is a tendency to display hypo-

chondriacal whims. The distractibility is greatly increased, so that even the most trifling affairs in the surroundings may interrupt and interfere greatly with systematic work.

In the field of *intellect* there is no striking disturbance; the consciousness remains unclouded and there is coherence of thought. The patients often appreciate their unfortunate condition.

In *emotional attitude* they are oppressed and sorrowful. They may have always been especially susceptible to the cares, sorrows, and misfortunes of life. Present pleasure is always clouded by past sorrow or the troubled fears of the future. Any undertaking dismays them, and they take little or no pleasure in any occupation. They are easily discouraged, feel that they are of little use in the world, are nervous, sick, and fear the outbreak of some disease. Some are always encumbered with the feeling that they have done something wrong, or that some ill will befall them. They are very deliberate in the consideration of all circumstances and possible results. In actions they exhibit a tendency to great precision and punctuality in little things. Their actions also show a certain uniformity and lack of freedom. Some patients are constantly thinking of death and are always preparing themselves for it. Though they may not seem in earnest about it, yet it not infrequently happens that they make attempts at suicide. Very often all sorts of nervous complaints interfere with their ability to work, such as pressure and pain in the head and peculiar sensations in all parts of the body. Sleep is usually much disturbed.

Upon the basis of congenital neurasthenia there sometimes develop conditions of pronounced depression, espe-

cially following a mental shock, a fright, or a misfortune. This condition is one of simple depression without hallucinations or delusions, with retention of consciousness and good insight, associated with a few hypochondriacal complaints, such as pressure about the heart, discomfort in the stomach, and stiffness in the legs.

The *course* of the disease is very prolonged, with irregular remissions; but within certain limits it runs a very uniform course, lasting from a few to several years. The disease first makes its appearance about the twentieth year. At first remissions are apt to occur, but later there is a tendency for the symptoms to persist, until finally there is a continuous morbid condition with little variation. Even during the remissions patients always display some evidence of mental peculiarities; they are quiet, dull, shy, or unfriendly.

The cases described above represent the usual disease picture. Instead of predominance of the sad disposition, the most prominent feature may be an ill-humored, disgruntled disposition. Here there is usually a heightened self-feeling and perhaps also great selfishness. The patients are easily offended, sensitive, difficult to handle, distrustful, grumbling, quarrelsome. They are also apt to be very passionate, are easily excited, and may even become aggressive, and are always very susceptible to alcohol. In their actions they are unstable; sometimes very tractable, at others stubborn.

Sometimes patients present a marked irritability, leading at times to attacks of blind rage with complete loss of self-control, especially under the influence of alcohol.

Congenital neurasthenia presents transition forms into *hysterical insanity* and in some cases shows similarities to the *traumatic neuroses*. There is no sharp distinction

between congenital neurasthenia and *acquired neurasthenia*. The greater the deficiency in the original constitution of the diseased patient, the greater is the similarity to congenital neurasthenia, in which, from youth, the ordinary stimuli have been elaborated only in a morbid manner. In congenital neurasthenia there is always present a morbid indisposition, whether or not the individual is overworked, while in acquired neurasthenia there appears a simple irritability upon overexertion, which disappears with rest. In congenital neurasthenia the morbid vacillations of the emotions, which play the important rôle, may even improve under the influence of exertion, which acts as a diversion, while prolonged idleness is apt to prove deleterious.

Treatment.—A well-regulated life, with choice of surroundings, can make the patients very comfortable, but family strife and increased responsibilities diminish the chance of recovery. On the other hand, absence of restraint tends to increase the trouble. They very often need employment, which must be suited to them, and so adjusted as to gradually increase the responsibility and the exercise of strength. Both massage and gymnastics are of value in creating new energy for work and in establishing self-dependence. Hypnotic suggestion is often helpful in cases with insomnia and complaints of pain.

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COMPULSIVE INSANITY

IN this psychopathic state compulsive ideas and compulsive fears form the predominant symptom. The intellect is not only undisturbed, but may be unusually good. The patients exhibit throughout a pronounced feeling of mental illness, and frequently a clear insight into the morbidity of the individual symptoms. Evidences of a psychopathic condition may have existed from infancy, sometimes appearing as hysterical symptoms, and at others in the form of a congenital neurasthenia.

First of all there appear simple compulsive ideas which force themselves upon the patients against their will, and in this way influence the freedom of the train of thought. Sometimes the content of the compulsive idea is purely indifferent, or at least not irritating. It is only the frequent repetition of the idea that causes annoyance. A physician was in this way tormented with the thoughts of death. Sometimes the idea is accompanied by a mental picture. One man was constantly seeing the hands of ghosts of whom he had once read.

Odors and melodies can similarly haunt the patients. Such ideas are especially annoying when they are nasty or create horror. Some patients are compelled to contemplate the sexual organs of those about them, even picturing them to themselves. Others when at stool have to dwell upon all sorts of disgusting scenes, or feel as if they were being shamed.

In a second group of cases there is a compulsion to ponder over certain definite things; for example, the

names of persons (onomatomania),¹ and particularly names hard to remember. If unable to recollect a name casually heard or seen, the patients immediately strain every nerve to get it, think of it all day long, lying awake nights trying to recall it, and the tension cannot be relieved until it comes to them. Incidents of this sort occur even in normal individuals. Some patients feel compelled to inquire the names of people whom they meet on the street; others feel that they must form a definite picture of the face, form, or color of the hair of strangers.

Another prominent tendency is to dwell on figures (arithmomania), when one is compelled to busy himself with the number of his house, the street, or of his room in the hotel; or he counts compulsively the guests about the table, the number of forks, knives, and glasses, the number of designs in the carpet or wall paper.

Frequently the compulsive ideas take the form of questions which may be of a metaphysical nature, as, "Who is God?" "Where did he come from?" "How was the universe created?" etc. Sometimes these questions refer to objects in the surroundings, when the patients are bothered with such questions as, "Why does that chair stand so and not so?" "Why does it have four legs and no more or less?" "Why is that house painted green and not brown?" etc. This, by Griesinger,² has been called "Gruebelsucht."

The so-called "phobias," the anxious conditions, also belong here; mysophobia (fear of dirt), agoraphobia (fear of public places), nyktophobia (fear of darkness), etc. The patients have these fears in spite of the fact that they know no harm can come to them. When subjected to

¹ Magnan, *Psychiatrische Vorlesungen*, 1893.

² Griesinger, *Archiv f. Psy.* I, S. 626, Berger, *ibid.* VI, S. 217.

them, they may suffer from palpitation of the heart, become pale, tremble, have a cold sweat, nausea, faintness, polyuria, weakness of the legs, and finally may even lose control of themselves and collapse. The best known of these conditions is agoraphobia,¹ when the patients are in fear of public places. Some are unable to walk down a long, broad street, or in a place where they are alone. When they attempt this, they are so overcome that they cannot proceed. When the condition is extreme, they are afraid to go out on the street at all, some even remaining in bed. Closely related to this is the fear of height which prevents patients from standing near a railing, on the brink of a precipice, going over bridges, or of being in a theatre. Among other morbid fears might be mentioned, that of being alone in the dark, riding on trains, and going through tunnels. These patients find no pleasure in travelling, do not enjoy going to church or the theatre, and always sit near the door, ready to fly at the first sign of danger.

There is also a condition called erythrophobia, in which patients fear blushing. When any one enters the room or their name is spoken they immediately blush, which causes great discomfort for fear that they may be thought guilty of some misdeed. It may even create so much annoyance that they are compelled to give up business. There is also the fear of wearing new clothing because of the newness and accompanying physical discomforts. The pronounced superstitions exhibited by many are allied to these fears. Some patients have fear of impending illness or some chronic disease.

Among the numerous phobias another is the fear of dirt contagion or infection (mysophobia). The countless bac-

¹ Westphal, *Archiv f. Psy.* III, s. 130 ; Cordes, *ibid.* III, s. 521 ; X, s. 48.

teria always present in the air are one of the chief sources of annoyance. The patients are everywhere complaining of the bad air and throwing up windows; they are afraid of handling brass or copper, or are always taking things up by nails or pieces of glass. They notice in their food a shining bit which may possibly be a pin. Books, especially, are avoided as a possible source of contagion. Occasionally a patient has the fear of destroying something of value. One lady was always in fear of throwing some important letter into the fire, or destroying it, and for this reason carefully avoided touching any paper and finally even printed books.

The patients are constantly washing themselves, and are fearful of disease from touching money, books, or papers. In taking food they have to wipe the dishes frequently, and inspect carefully every bit of food. Then there are those cases where the patients are not in so much fear for themselves as they are for others. They are constantly in fear that they may not have made themselves understood. After leaving a friend they sit down and write a letter in order to be sure that they are understood, but the letter is barely off before they are in doubt as to whether they made themselves clear in it. These patients weigh every word before they express themselves, trying to avoid false interpretations. In many cases the fears are quite silly in spite of better judgment; they feel that they are guilty of crime, of homicide, have committed a theft, or have poisoned a relative. In the lighter forms these doubts exist only in one field of activity; in the severer forms they influence all the actions of the patients. Perhaps it would have been better if they had not drunk that glass of water, or they possibly have harmed themselves by taking that

piece of cake. Had they not gone out of doors, it would have been better; an accident would not have happened or that fire would not have broken out. It is actually impossible for them to remain at rest, because of the uncertainty as to whether they have closed a door, or have sealed a letter that they have mailed. Consequently, there arises an ever increasing painstaking in all the little details of daily life. They are always turning back to see if they have locked the door, or tearing open letters to see if they have enclosed the right one.

As the result of fear of misplacing something or of soiling themselves there develops the fear of contact, "*delire du toucher*" of the French. All the needles in the house are thrown away and they give up sewing for fear that they may injure themselves. The windows are no longer washed, because the glass might break and cut them. They no longer offer to shake hands, but wear gloves and open windows with their elbows. They begin the habit of washing, not only their hands, their bodies, but also all of their clothing. Some patients spend the entire day in dressing, undressing, and washing themselves and their clothing.

The consciousness of all these patients is entirely clear. They have an insight into their condition, and a desire, but not the strength, to free themselves from it. They know well enough that no real harm threatens them, but that they are overwhelmed only by the "fear of the fear." Their emotional attitude shows anxiety, which often is in marked contrast to their courage in real danger. They are usually of a weak, dependent nature. In their behavior and actions they frequently show nothing abnormal, and control themselves perfectly before strangers.

A common characteristic of almost all phobias are the

crises. As soon as one threatens to do that feared by the patient, or to hinder him from carrying out his usual means of protection, he develops an anxious condition with excitement. It is quite astonishing to see how the patients, until now hoping for relief of the disease, suddenly turn about and oppose any real attempt at combating it. There are other patients whose compulsive fears seem to take the form of impulses, when such questions as the following keep arising: "What would happen if you should undertake to do this or that: if you should kill some one with that knife lying there, or set that building on fire, or shout aloud in church?" For this reason they avoid the use of sharp instruments and never handle matches, etc.

The *course* of the disease varies much. Complete disappearance of the symptoms seldom occurs, and then only for a short time. Rapid improvement is often noticed. It appears usually during the period of development. The first symptoms often follow some shock. The **prognosis** is unfavorable.

Treatment. — In youth careful attention to the demands of physical development is necessary. Threatening peculiarities should be warded off by careful training and all deleterious influences removed, which tend to weaken the physical and mental powers of resistance. The symptoms of the disease can be combated by persistent and patient training with a view to strengthening and encouraging the patient to struggle step by step against the morbid compulsion. The significance of their condition should always be made clear to the patients, and they must be impressed with the fact that they will overcome it more by abstraction and diversion than by exercise of will power.

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IMPULSIVE INSANITY

IMPULSIVE insanity is characterized by the development of morbid tendencies and impulses which may continuously predominate over volition or appear only in paroxysms. These acts, which appear without motive, are performed because of an irresistible impulse. The impulses do not arise as the result of a conscious plan, but appear suddenly, are quickly executed, and often quite indistinct, thereby causing the actions to appear unpremeditated, purposeless, and even absurd.

A transition state from normal impulses to impulsive insanity may be seen in those individuals in whom such impulses are quite trifling and indifferent, appear and disappear rapidly, perhaps only under unusual circumstances, and lead to very simple deeds. Maudsley tells of a man who for weeks was annoyed by an impulse to overturn two stones which lay upon a wall, finally forcing him to sneak out at night in order to perform the absurd act. But the disease becomes of great importance to the patient, for whom the impulses are constantly involving the environment and interfering with comfort and occupation.

In some cases the morbid impulses are all in one direction. Of these the most important is the impulse to set fire (pyromania), which is exhibited especially by young females, most often during puberty. Sometimes the morbid pleasure of seeing things burn, and at hearing the crackle, dates from early childhood. Another common form of impulse of this kind is seen in the

tendency to skilful but foolish stealing (kleptomania), encountered almost exclusively among women, and especially during menstruation and pregnancy. The stolen articles are frequently almost or quite worthless for the patients. In some cases there is a desire for some one definite thing, which is accumulated in great quantities. Sexual impulses may accompany this condition. Further expressions of degeneracy of normal impulses are seen in the silly fondness for animals, the irresistible tendency to play, marked increase of sexual impulses, and many similar digressions.

The morbid impulses to destroy and kill are other instances. There is a special group of young women who show a morbid impulse to beat little children entrusted to their care. Here there exists a close relationship to those sexual impulses which have been called sadism, masochism, and fetichism. The men who prod women, who snip hair, slash ladies' dresses, steal women's shoes or linen, and many exhibitionists belong to this class.

The mental endowment of these patients usually shows no marked defect, but in some severe cases there is a more or less high grade of mental weakness. In the mental field there is apt to exist some weakness, and the patients may be childish, shy, or seclusive.

The symptoms of the disease appear only during certain periods of life, and particularly during the period of development, at which time there is a condition of lessened resistance in both the physical and mental fields. In some cases there is improvement with development, and the formation of a stable personality. Only occasionally is periodicity noticed. One should not confound the irrevocable relapsing of the criminal with the regular repetition of similar criminal acts in these patients. The

criminal sets fire, kills, and steals, but he does it from selfish motives, and for some definite purpose, perhaps to do some one injury, and the dominating impulse forces the individual to the deed against his will. Frequently he has a feeling that the action is inconsistent, unnatural, and morbid. On the other hand, impulsive insanity approaches very closely some forms of compulsive insanity. These patients do not confine themselves to deeds close at hand; they often have an abhorrence of them and fear that they may yield to something which really does not exist. Here there is apt to be associated with the idea of the morbid act a feeling of desire and eagerness for the performance, and they cannot remain quiet until it is done. The act is immediately followed by a feeling of relief, but failure brings disappointment at the result. There is not a trace of penitence, except where there is some moral defect, and especially when, after the excitement of the deed, those opposing ideas appear which have been forced to the background by the overwhelming desire. For this reason, it is clear that we have on the one hand to do with real morbid impulses, and on the other with simple compulsive fears. The two important characteristics of impulsive insanity are that there is no clear and rational purpose for the deed, and that there are evident defects in other fields of the psychical life.

The **treatment** of impulsive insanity naturally lies in the education of the patient, which must be adapted to individual cases and carefully conducted with proper regard for the physical development. It is of greatest importance that the patients do not become addicted to the use of alcohol. There are some cases, who, for the protection of society, need to be confined in an institution. Here they can be educated to lead a useful life.

CONTRARY SEXUAL INSTINCTS

THIS psychopathic state, which received its name from Westphal, refers to those sexual propensities appearing mostly in youth, exhibited by individuals of the same sex for each other, with an indifference or even an abhorrence of the opposite sex. The condition has also been well described by Krafft-Ebing, Moll, and Schrenk-Notzing.

Etiology. — The contrary sexual instincts are far more prevalent among men. It is an uncommon condition, the cases reported to date numbering but a few hundred, although homosexual patients maintain that it is by no means rare. Ulrichs, in his own morbid experience, claims to have encountered two hundred cases. It is more prevalent in certain employments, such as among decorators, waiters, ladies' tailors; also among theatrical people. Moll claims that women comedians are regularly homosexual.

The condition develops from a state of degeneracy. It is a view of Krafft-Ebing, emphasized by the statements of the patients themselves, that the peculiar perversion of the sexual impulse is congenital. Schrenk-Notzing, on the other hand, lays some stress upon accidental factors, which happen to exert an influence upon the sexual feelings long before the age of sexual development, such as the intercourse of naked boys while bathing, wrestling, etc. Sometimes passionate friendships exist among young children who are still ignorant of the sexual differences. But it is only with the abnormal child that such accidental

influences upon the early sensual feelings can have any power in the later development of the sexual impulses. It seems most probable, then, that the morbidity of the condition depends not upon impulses which are perverted from the onset, but upon a characteristic tendency, originating in a hereditary state of degeneracy.

Symptomatology. — Sexual impulses develop early, and usually to a marked degree, sometimes leading to onanism. The natural heterosexual impulses may have developed first, being displaced later by stronger morbid tendencies. The patients, both in the waking and dream states, experience pleasurable sexual feelings only in connection with their own sex. Attempts at natural sexual intercourse are unsuccessful, or accomplished only with difficulty. Close associations are usually formed with some individuals of the same sex, which usually develop into passionate friendship with extravagant display of affection, letter-writing, sending gifts and flowers, and exhibitions of jealousy. This frequently extends to kissing, embracing, and occasionally to masturbation and other forms of sexual perversion, but rarely to pederasty. In these friendships the physical and mental superiority of one individual over another may aid in arousing the sexual feelings. Usually both individuals are homosexual, but sometimes the patient desires intercourse only with a normal individual. Frequent changes of the affection, with disruption of these friendships, often occur, showing the fickleness of the patients, though in some cases such relationships are maintained for years. Differences in social rank is of less importance than in normal individuals. A few patients of the better classes are attracted by mechanics, and especially by soldiers.

The patients usually remain unmarried. Those who do

marry, either in the hope of overcoming their perverse tendencies or from the desire to have children, are usually true to their marital duties, except in the matter of sexual intercourse. Some indulge occasionally, but more, regularly, in homosexual intercourse.

Other symptoms indicative of a morbid constitutional basis are usually present, especially the physical stigmata. Judgment is usually unimpaired, as well as the ability to comprehend, but there is an increased sense of fatigue, lack of perseverance with mental work, and a tendency to dream. Imagination is prominent and interferes with the capacity for purely rational activity. Some are especially endowed in an artistic way, being good musicians and artists; but they also possess a keen sense of appreciation of their abilities. Mental weakness may exist. Many patients have an insight into the morbidness of their impulses, and defend themselves on the ground that the impulses are the natural and involuntary product of their constitution. In the emotional life they present irritability, are sensitive, moody, and impressionable, often timid, and given to passionate outbursts of feeling. In actions they appear effeminate, vain, pliable, unstable, and are sometimes sluggish. They are often careless about their work, easily distractible, and untrustworthy. The sexual impulses are apt to gain control over them, causing neglect of business. Fetichism and other perversities may also be present.

The condition of psychic hermaphroditism is occasionally present, when sexual feelings are exhibited toward both sexes, though usually stronger toward one sex than the other. Where homosexuality is very pronounced, the individual may experience a change of personality, a man becoming feminine in manner, gait, and

countenance. He becomes affected in manner, vain, coquettish, takes great pains with his personal appearance, desires to be in fashion, wears flowers, and uses cosmetics. Some develop a fondness for women's employment, do needlework, arrange their rooms after the fashion of a woman's boudoir, and they may even dress in women's clothes, padding the hips and breast, talk in a falsetto voice, and in every possible way simulate feminine traits. Early evidences of such traits may make their appearance in childhood. A few patients present physical characteristics indicative of the opposite sex; men are beardless, possess high-pitched, light voices, have soft white skin, with a more marked panniculus adiposus and well-developed mammæ; while the homosexual females have a deep, coarse voice and show a tendency to grow beards. The former are called by Krafft-Ebing androgyny, and the latter gynandry. Hermaphroditism has never been encountered in homosexual individuals.

The course of the disease, which usually reaches its full development between twenty-five to thirty-five years of age, is always prolonged. In the acquired homosexuality there is often a long struggle before the patient becomes a confirmed pervert. The homosexual tendencies may appear periodically with or without accompanying states of general excitement.

Diagnosis.—It is not a difficult matter to identify homosexual patients where there has been a marked transposition of the traits characteristic of the sexes. Yet normal sexual instincts may exist in spite of such a transposition. Usually the condition becomes known to the physician only through the communication of the patient. It is necessary to distinguish between contrary sexual instincts and mere practice of homosexual acts,

the latter being pure perversity, as practised among prisoners, etc., who return to normal sexual relations upon gaining freedom.

The **prognosis** is more favorable than is usually thought. Very many cases improve and some even recover under the influence of treatment.

Treatment.—The most successful method of treatment is through the use of hypnotic suggestion. This is directed first against the increased sexual excitability and masturbation, which is frequently present; next it is applied to the insensibility of the patient toward his own sex, and finally in creating an excitability toward the opposite sex and a tendency to heterosexual intercourse. The hypnotic influence over the patient, dealing as it does with a deeply rooted habit, is acquired slowly and with difficulty. Schrenk-Notzing lays great stress upon regular natural intercourse, but excessive coitus must be avoided, because it may have an injurious effect upon the self-confidence. Treatment directed at the general nervous condition is also of importance, and should include the establishment of a routine in the physical and mental life, with attention to the diet, exercise, and relaxation. One should remember that even though marked improvement or recovery takes place, the original defective basis still remains.

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DEFECTIVE MENTAL DEVELOPMENT

UNDER this heading are described those mental states which are the result of an incomplete or early interrupted development of mental life. In distinction from the process of mental deterioration these states may be regarded as conditions of retarded mental development. These conditions, however, may be closely associated with each other, as when a deterioration psychosis appears in individuals with defective development, when either the perversion or the deterioration may be the more prominent.

A defective hereditary endowment is almost always present. The pathological basis for defective mental development is the incomplete development of the cerebral cortex. This is often due to some disease occurring during fetal or infantile life which has an injurious influence upon the developing nervous elements. Our knowledge of the anatomical facts is as yet so incomplete that it is impossible, on a pathological basis, to differentiate between the different grades of defective mental development. In a general way the lighter forms are designated imbecility; and the severer, idiocy.

IMBECILITY

This form of defective mental development is characterized by a *moderate degree of mental incapacity, which is usually of equal prominence on all sides of the mental life*; it may, however, involve chiefly the moral field, when it is sometimes called *moral imbecility*. Clinically, imbeciles

may be divided into two groups, the *stupid* and the *active*, according to the degree of mental activity.

The fundamental symptoms in the *stupid form* are stupidity and insensibility. There is an inability to receive many impressions, or to grasp and utilize the experiences of life ; consequently the knowledge of the outside world confines itself to the immediate surroundings, while events without their narrow mental horizon pass unnoticed. Probably the sensory presentations are retained, but there is an absence of a unification of single experiences into general ideas. Individual and insignificant elements make up the fund of experience. There is no comprehensive elaboration of experience, and general relations are apprehended without the establishment of any definite points of view. Essential and fundamental relations and distinctions are not recognized. Thought is scanty, limited mostly to daily experiences, usually travels the same path, and, according to the research of Buccola, is really retarded.

Judgment is defective and uncertain and often determined by chance ideas not the outcome of past experience. Patients also fail to consider the possible consequences of their actions, either in reference to themselves or others. *Memory* is accurate only for the most prominent events of life. Yet sometimes trifling incidents are firmly retained, while the more essential are forgotten. The narration of events as remembered by them is noticeably faulty because of numerous omissions and changes. The same narrations at different times show many contradictions, though sometimes they are repeated word for word. *Consciousness* is unclouded. The patients recognize the surroundings and comprehend questions. They have no insight into their mental condition, but usually regard themselves as perfectly sound.

It is quite in accord with these mental characteristics that in the actions and conversation of patients their *own personality* should always come into prominence. The narrower one's experience, the more prominent is the rôle of the Ego, leading in the case of the imbecile to more or less marked selfishness. The central point about which the whole life revolves is their own physical well-being, — eating and drinking and the possession of things desired, — while all else is indifferent. Occasionally they fail to show the natural affection for parents and relatives. The superficial sorrow at the loss of some relative is quickly lost in the pomp of the funeral procession and the joy over a new suit of mourning. The absence of sympathy for those who are in want and unfortunate may explain the cruelty which they sometimes display toward animals and in their combats with others.

Lighter grades of this type of imbecility often fail of recognition because of the absence of sharp border lines between them and the stupidity sometimes present in normal individuals. Imbecilic defects, however, become more and more apparent as the individual advances in age and is compelled to take up some responsibility in life. Yet these defects may not be recognized because of the patient's ability to utilize a certain amount of experience and to engage regularly and with some mechanical skill in a simple occupation. But just as soon as anything extraordinary occurs, a mental shock or a temptation, which demands discretion and decision of action, the mental and moral incapacity becomes evident. Unfortunately at this time their actions are judged from a legal and not from a medical standpoint. Rigid military discipline brings to the light many such cases, especially in those countries where military service is required. It

becomes most apparent in stubbornness, insubordination, desertion, and attacks upon officers. Lack of judgment in handling these cases sometimes results in suicidal attempts.

Imbecility is usually recognized at an early date. In infancy it may be noticed that patients are tardy in learning how to laugh, to imitate, and to speak. Later, at school, they are backward in studies, are sluggish, indolent, show poverty of thought and inability to comprehend, and soon become the sport of their playmates. They find difficulty in learning to read, write, and reckon, and the few facts in geography or grammar, committed to memory, are soon forgotten, since they are not essential to their limited experiences of life. A fairly good memory may conceal their incapacity for a long time.

The patients are very often refractory, hard to train, and have a tendency to develop bad traits, such as stealing, annoying dumb animals, and indulging in sexual improprieties, which often necessitates their commitment to industrial schools. During youth and puberty their mental incapacity becomes still more evident, because of the marked contrast to the rapid mental development of their playmates. At this time their own development comes to a standstill or may even retrograde, presenting resemblances to the progressive deterioration of dementia præcox.

In the *active* or energetic type of imbecility, there is a morbid activity of the attention and imagination, in contrast to the general sluggishness of the stupid form. Patients are attracted by every new impression, and unable to direct their attention permanently to any one object; hence their observations are hasty and superficial. They are always ready to pass judgment without deliberation.

This susceptibility to new and accidental impressions renders their view of the outside world very incomplete and fragmentary. Such vague pictures lead to faulty conceptions and form the basis for incorrect judgment. As soon as ideation leaves the purely sensory field, the logical train of thought yields to the influence of the lively imagination, while the sharp definition characteristic of general ideas disappears. Circumstances existing only in their imagination are of far more importance in their deliberations than absolute facts. Thought, therefore, becomes unsteady and shows many inconsistencies; patients vacillate in their plans from day to day, draw inconsistent conclusions from the same premises, and thus their views of life and the outer world lack reality.

Their flighty conversation contains a frequent repetition of certain high sounding remarks and commonplaces, which often have little bearing upon the sense. They are very apt to lose the thread of conversation, refer to the most diverse subjects, but usually finish with some very striking remark. Such a bombastic style very often conceals from the inexperienced the actual mental enfeeblement, and leads to their being regarded as unusually bright individuals. It is quite in accord with these mental peculiarities that patients not only embellish and distort their recollections with many fanciful ideas but also fabricate extensively. In spite of evident contradictions in their statements, they reassert them tenaciously, and refuse further discussion. Accusations of the patients against relatives and fellow-patients should, therefore, be accepted with the greatest caution. These energetic patients possess a better memory than the apathetic, are able to acquire some new knowledge, and to adapt themselves to new environment to a certain extent.

The *emotional attitude* presents a mobility equal to that

encountered in the attention and the imagination. Every impression is accompanied by an accentuated but rapidly vanishing tone of feeling, and the moods vacillate from one extreme to another, showing despondency and exuberance, despair and enthusiasm, which appear upon little provocation. Violent likes and dislikes change from day to day; the dearest blessed doctor of to-day becomes the vilest scoundrel to-morrow. While extravagant in their emotional expressions, with a tendency to emotional outbursts, they are readily diverted and pacified. Irritability and sensitiveness are always present to a greater or less degree, especially when patients believe themselves interfered with; often they are docile and good-natured. An exaggerated feeling of self-importance regularly accompanies this form, some patients even believing themselves specially endowed and often boasting of their prospects, while at the same time showing a lack of insight into their diseased condition. Any shortcomings on their part are explained by the hostility of relatives or lack of support.

In *conduct* the patients are odd, freakish, sometimes loquacious, forward, pretentious, and silly; sometimes quiet, docile, and reticent. They are apt to dress in a peculiar manner or to be slovenly in appearance. They work with varying zeal. In youth they are frequently considered bright, especially by the parents, but later become fickle, unable to employ themselves at all, leave home, wander aimlessly about, drink, and indulge in all sorts of excesses. Many prostitutes belong to this class. In many of these cases, where there seems to be only a light grade of imbecility, there may be some question whether we are not really dealing with conditions of degeneracy, but the presence of profound mental deficiency, in spite of a certain amount of

superficial activity, should leave no doubt. Gudden designated such patients as "high-grade imbeciles."

Imbecility may form the basis for the development of other psychoses; as manic-depressive insanity, the psychoses of involution and dementia præcox, the last of which in seven per cent. of cases appears on an imbecile basis; besides this, very often only individual symptoms of other psychoses appear, such as periods of excitement and depression, not of the manic-depressive type, single transitory expansive or persecutory delusions, rarely hallucinations, and especially those attacks so characteristic of the constitutional psychopathic states. As signs of physical degeneration we frequently find stigmata; as, anomalies of the skull, malformation of the palate, misshapen ears, puerile expression, chorea, etc.

Moral imbecility represents another form of congenital mental weakness, which includes chiefly the realm of the feelings. It is characterized by the absence or weakness of those feelings which inhibit the development of marked selfishness. The intellect as regards matters of practical life is moderately developed; patients apprehend well, are able to accumulate more or less knowledge which they utilize for their own advantage, possess a good memory, and show no defects in the process of thought. They do, however, lack the ability to obtain general view points, to perform any mental work of a high grade, and to form an adequate conception of life or the outer world.

Morally, their lack of sympathy is manifested from youth up in their cruelty toward animals, the tendency to tease and use roughly playmates, and an inaccessibility to moral influences. From this they develop the most pronounced selfishness, lack of sense of honor, and of affection for parents and relatives. It is impossible to

train them because of the absence of love and ambition. They tell falsehoods, become crafty, deceitful, and stubborn. The egotism becomes more and more evident in their great conceit, bragging, and wilfulness, their inordinate desire for enjoyment, their indolence and dissipation. They are incapable of resisting temptation, and give way to sudden impulses and emotional outbursts, while the susceptibility to alcohol is especially prominent.

Very many professional criminals present the symptoms of moral imbecility to a marked degree. In these cases there is no doubt but that a scanty and defective training and education under circumstances unfavorable to a healthy moral development are of equal importance with the defective heredity, which is a constant factor. Indeed, there is often an extraordinary persistency of the criminal tendencies in these individuals, who can in no way be diverted from this profession. The development of specialties among these criminals is another expression of a one-sidedness of conduct.

Course. — The course of imbecility varies considerably; some patients, unsuccessful in their attempts to enter a profession or to become employed in mechanical arts, engage in simple labor, and failing in this, they become a burden to the family. It is not infrequent for them to develop some psychosis later in life, especially manic-depressive insanity and senile dementia. Others show irregular periods of excitement, with aggressiveness, great irritability, and variable emotional moods. Usually it becomes necessary at some time during their life to confine them in almshouses or hospitals for the insane.

Diagnosis. — There are some cases of *dementia præcox* which are difficult to differentiate from the lighter, active forms of imbecility. The character of the onset, dating

from childhood, the absence of hallucinations and pronounced delusions, and of any evidence of earlier acquired knowledge, except as much as might be consistent with the present productiveness of the patient, speak for imbecility. Furthermore, in dementia præcox patients may show some improvement, while imbeciles present no change.

There are a few cases of *hysteria* with a moderate degree of deterioration which might be confounded with imbecility, but in them the course of the disease is not as uniform and the mental weakness is not as evident on all sides of the psychical life; while in imbecility but few patients present hysterical symptoms. There are all possible transition stages between imbecility and the normal state, among which should be classed those weak-minded individuals who are over-credulous and superficial in knowledge, getting a smattering of everything but knowing nothing thoroughly; who take hold of everything new with enthusiasm, are easily led astray and indulge in excesses, and who are always in doubt as to their real motives for action.

Treatment. — The treatment of congenital imbecility consists principally in providing an appropriate education, with a view to developing any capacity that may exist. This is best accomplished in the hands of some competent tutor or in a private or state institution established for that purpose. The training should by no means be directed simply toward mental education, but should include manual training. The use of alcohol should be strenuously avoided. If, in spite of training, the patients develop dangerous tendencies, hospital care is necessary.

IDIOCY

IDIOCY is characterized by a more profound degree of mental incapacity than imbecility.

Etiology. — Defective heredity is one of the most important etiological factors. Idiocy may be regarded as the final stage of hereditary degeneration. Wildermuth finds defective heredity in seventy per cent. of cases, mostly in the form of alcoholism in the parents. Possibly also intoxication of one or both parents at the time of copulation predisposes to idiocy. Severe illness or mental shock during pregnancy and hereditary tendency to tuberculosis (Piper) have been noted as causes. Injuries at the time of birth, prolonged asphyxia, but especially compression by narrow pelves or forceps are probably important factors. In idiocy developing after birth (one-fourth to one-third of cases) the most important causes are infectious diseases, — typhoid fever, measles, scarlet fever, and diphtheria; also head injuries, congenital syphilis, and rachitis.

Premature ossification of the cranial sutures is no longer regarded as a cause of idiocy, but rather as an accompaniment, recent investigation showing that the growth of the calvarium is determined by the proportional growth of the brain and not vice versa. Malformation of the cranium occurs in at least one-half of the cases, in which anomaly macrocephaly is far more prominent than microcephaly. An extreme grade of the former of these conditions is represented by Plate 9, while Plate 10 represents the condition of microcephaly. Furthermore, the closure of the suture has nothing to do with the malformation



PLATE 9. Macrocephaly.



of the brain. Narrowness of the base of the cranium accompanies more often the profoundly stupid forms of idiocy, and smallness of the vertex, the excited forms. More than one-half of idiots are first-born, and four to five per cent. are twins. The male sex predominates.

Pathological Anatomy.—Many cases present defective development of the central nervous system, either smallness or increased size of the entire encephalon or malformation of some of its parts; absence of corpus callosum, of cerebellum, inequality of hemispheres, sparsity or anomalies of convolutions and microgyri, conditions which represent halting of development, or even a reversion to structures characteristic of lower animals. In some cases evidences of genuine disease processes are found; encephalitis, meningitis, hydrocephaly, and tumor formation, causing extensive destruction of the cortex (porencephaly) or a general atrophy. Similar conditions may be due to vascular changes, of which the most important are endarteritis, thrombosis, and embolism; also occlusion of vessels caused by traumatic hemorrhage at the time of birth or later.

Microscopically, we may find either an insufficient development of the neurones or evidences of former disease processes. In under-development the nerve cells do not develop beyond an embryonic stage (Hammarberg). The cortex is barely half its normal thickness, the whole number of cells is reduced, while they stand closer together, in regular rows, with a marked diminution in the amount of gray matter between them, so that the different layers cannot be clearly distinguished (a characteristic of lower animals). The cells themselves are embryonic in structure, being mostly of the same size and globular in form. This faulty development may vary in different parts of the cortex. See Figure 1, Plate 4.

In other cases there may be normal development, with the usual number and arrangement of cells, but there are areas in which the cells have entirely disappeared as the result of a disease process, presenting also an increase of glia. In the few cases of hypertrophic sclerosis, the increase in the size of the brain is due to the great increase of glia, either as an accompaniment or as a result of a degenerative process in the cortex. The nature of the causes which produce such lesions in fetal and early life is still unknown. They may be due to intoxication or infection.

Symptomatology. — The symptoms of the disease are best considered in two groups, the severe and the light forms.

In the most *extreme cases* of the disease, patients are unable to comprehend external impressions, to gather new experience, or become acquainted with the environment, are unable to form clear ideas or judgments, and indeed barely possess self-consciousness. The emotional life is confined to mere vacillations of the general feelings. Consequently, the impulses arising from these feelings lead only to simple actions, such as the taking of food. The patients eat anything placed before them, even to pieces of clothing and rubbish. Idiots are not excitable; they show very little, if any, fear or pleasure, at the most, manifesting some pleasure in kicking or swaying movements, while hunger or physical pain may be expressed in monotonous or shrill cries. If repeatedly pricked in the same place, causing them to cry out with pain, they do not try to protect themselves. Some even pound themselves severely, inflicting wounds, but immediately repeat the act. One girl would impulsively bite deeply into the flesh of her arm, unless prevented.

Teething is delayed, and the whole physical develop-



PLATE 10. Microcephaly.

ment retarded. The countenance is usually stupid and vacuous. The movements are clumsy and awkward; patients do not walk until late, and some never even learn to stand but are absolutely helpless. Some restlessness may develop, with a tendency to move aimlessly about, to sway the head or body back and forth rhythmically for a long time, to clap the hands, or to grunt. Convulsive attacks are of frequent occurrence. These patients are so utterly helpless that without constant attention they would quickly perish.

In the *light* cases, it is possible to fix the attention momentarily by the aid of some striking object, but the patients themselves are quite unable to direct the attention. A few clear sensory impressions may enter consciousness, and a limited number of ideas may be formed, which are extremely simple, always incomplete, and without connection. Memory is very poor, there is no ability to make a selection from different impressions in order to establish a basis for the formation of concepts, and, indeed, a psychic personality is never developed. Speech, and therefore intercourse with the environment, is poorly developed. Unable to form sentences, idiots present a mixture of incomplete words or syllables similar to the early efforts of an infant. They do not imitate, play, or busy themselves, and are very susceptible to fatigue. Without thought or care for the future, they live indifferently from day to day.

The lower sensory or selfish feelings dominate the emotional attitude, and liberate only those impulses for action which gratify a momentary pleasure. Idiots never feel attracted toward any special individual, never express gratitude or show grief. When irritated by rough treatment or opposed, they may show sudden outbursts of

rage, attempting to destroy something or to injure some one. Sexual desires may either remain undeveloped or appear early and lead to reckless masturbation and sexual assaults. Often the appetite for food is abnormally developed, patients eating ravenously and feeding themselves with their hands. A few show some one-sided capabilities, such as a good memory for numbers or words, or some simple technical skill. Many idiots are fond of music.

In the lighter grades of idiocy, two types may be distinguished, the stupid or anergic, and the excited or active, depending upon the distractibility of the attention. The anergic patients are torpid, thought is sluggish and very limited, and there is pronounced emotional indifference. In the active (*erethisch*) patients, the attention wanders aimlessly, filling consciousness with a variegated, incoherent jumble. The emotions change rapidly. At one time patients are stubborn; at another, show purposeless activity, running about, laughing, crying and clapping the hands. Between these two groups there are numerous transition stages.

In idiocy periods of excitement or depression may occur which present some similarity to attacks of manic-depressive insanity, and the excitement which occurs in the end stages of *dementia præcox*. Compulsive ideas, morbid impulses, periods of anxiety, sometimes with suicidal tendencies, may appear, and occasionally there may be simple childish expansive or persecutory ideas.

Physical Symptoms. — There is a stunting of the whole physical development; the stature is undersized or even dwarfish. Countenance is childish. Hair is often absent from the face and pubes. The genitals are undeveloped; menstruation absent, late, or irregular. Teeth are late



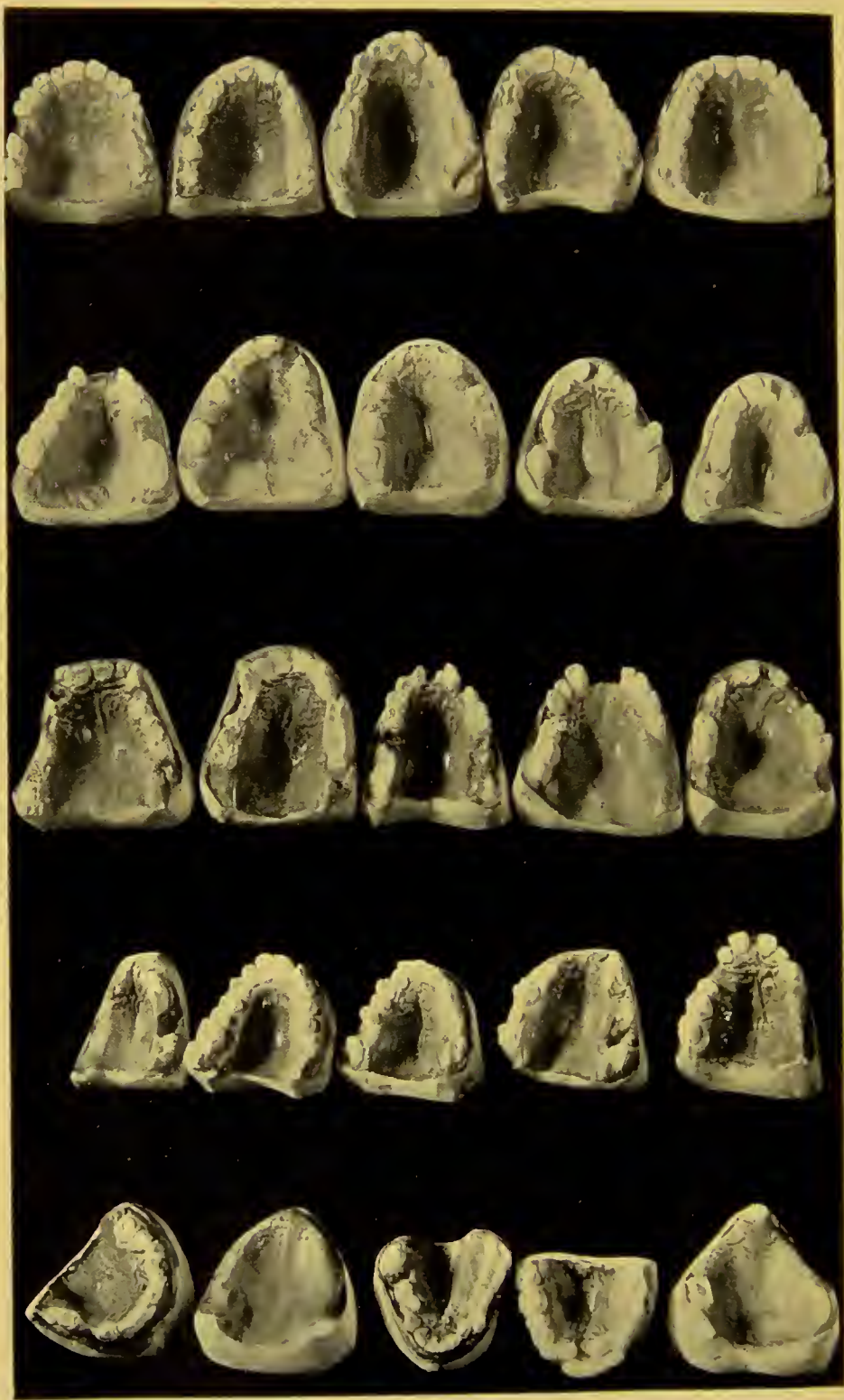


PLATE 11. Casts of symmetrical and asymmetrical palates, the latter of which were taken from idiots and imbeciles.

in developing and often faulty in arrangement, and the palate is usually asymmetrical. (See Plate 11, the lower four rows in which represent misshapen palates. These are to be compared with the normal palates seen in the top row.) The special senses, especially hearing, are blunted. In eighty per cent. of cases the so-called stigmata of degeneration are present (Wildermuth), viz. malformation of the eyes, ears, mouth, nose, and especially, the bones of the face. Other frequent symptoms are increase or loss of the reflexes; incoördination of the lower extremities, and of the eye muscles, and difficulty of speech, with elision of the end syllables, stuttering, halting, and faulty articulation of some or most of the consonants; all idiots are awkward and often show associated movements; mirror-writing is found, especially among the girls. Evidences of focal cerebral lesions are manifested by hemiplegia, paresis, contractures, convulsions, choreic and athetoid movements, aphasia, and in thirty per cent. of the cases, especially in boys, epilepsy (Wildermuth).

Diagnosis. — The recognition of the disease, which is difficult only in infancy and in very early childhood, depends upon the insensibility of the children to external influences. They do not manifest a feeling of hunger, even when lying upon the breast or at the approach of the mother, are not attentive, do not smile or cry, and may be continually restless; many give evidence of some cerebral disturbance, as paralysis or hemiplegia. The limbs may remain in a fetal condition; they do not learn how to walk or talk, and are unable to understand speech. The distinction between the lighter degrees of idiocy and imbecility is often arbitrary. Patients who show some mental development, especially in memory

but not in apprehension and judgment, are in general considered as imbeciles.

Prognosis. — The prognosis is unfavorable. While idiots can never reach the rank of normal men, the question of how much they can develop is of great importance. In general it can be said that if their attention can be held for some time, and they give evidence of memory, *i.e.* recognize articles and resist what they have once experienced as disagreeable and appear to understand speech, the prognosis is more favorable. The appearance of epilepsy in early childhood is very unfavorable. During puberty, idiots often lose what little knowledge they may have acquired, and some even present the hebephrenic or catatonic picture of dementia præcox. Their life is usually short, because of their lessened powers of resistance to intercurrent diseases.

Treatment. — Temperance in parents should be encouraged as in important prophylactic measure. The condition of faulty nutrition, which is frequently present, improves with the relief of insomnia, the prevention of masturbation, removal of sources of focal irritation and strict cleanliness. Epileptic attacks should be combated with bromids, atropin, or other suitable measures, with the hope of preventing profound deterioration. Craniectomy in some cases of microcephaly is an irrational procedure and is fast disappearing from practice.

Besides treatment of the physical condition, the patients should receive training in institutions for the feeble-minded. Idiots left to themselves or in a poor environment, rapidly go to the bad. Harmless patients in the case of sisters or brothers may become threatening or aggressive and attempt sexual assaults. Such patients are somewhat susceptible to training. This, however,

requires a greater sacrifice of kindness and patience, and more experience than can be obtained in the ordinary home. An effort should first be made to teach them to walk and use their hands, also to employ their different senses, to direct their attention and to speak, followed by special instruction in the perception of objects, in distinguishing them, and in forming simple judgments. As a result of such training, many patients yearly leave institutions well enough trained to be of use in a limited field. They, however, continue to need some care and supervision throughout life, as their inability to get along in the world and to utilize knowledge stands in striking disproportion to knowledge taught them.

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